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ABSTRACT

This annotated bibliography of environmental education materials for preschool through grade 6 is intended for teachers and librarians. Most materials cited were published from 1970-1972, although a few date from the 1960's. The bibliography has two main sections: (1) preschool-grade 3 and (2) grades 4-6. A third and last section, an update of materials published from 1970-1973, cites additional materials not included in the main section. Within each section materials are listed by author under the following categories: (1) bibliographies; (2) books for students; (3) books for teachers -- activity guides; (4) curriculum materials; (5) filmstrips; (6) graphics; and (7) magazines. Prices are included for magazine subscriptions. Publisher's addresses are also provided. (Author/RM)

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AIDS TO ENVIRONMENTAL EDUCATION

PRESCHOOL - GRADE 3

Environmental Education is concerned with the nature of man, the nature of the biosphere in which we live and the interrelationships that exist between man and biosphere.

In a day and age when the results of the human arrogance, that sets man outside of the beautifully interrelated systems of nature, are violently apparent in the form of pollution, overpopulation, with its many resultant strifes, environmental degradation and over-exploitation of limited resources, it is imperative that people become educated to the point of a basic environmental literacy. It is a task for the total educational continuum. Teachers and interpreters at every level will have to do their part.

In the preschool and primary grades it is important that children be given as wide an exposure as possible to environmental experiences. They can be developing an "experience bank" upon which they can continue to draw for concept formation as they develop. These years are also important ones in attitude development and emphasis should be placed on this, remembering strongly the exemplary role of the teacher in attitude formation.

As teachers and librarians read this bibliography many of the materials, particularly the books, will be familiar. This should help to make it clear that Environmental Education is not a new subject that must be added to the curriculum but rather an "umbrella" under which all the disciplines can be gathered and thus interrelated.

This series of AIDS was compiled for the U.S. Office of Education by the librarian of the Hatheway School of Conservation Education, the education division of the Massachusetts Audubon Society. They represent a select, rather than comprehensive, listing of materials prepared for the information and convenience of teachers. Selection of material for these lists by either Massachusetts Audubon Society or the U . Office of Education does not constitute official endorsement or approval of it to the exclusion of others which may be suitable.

April, 1972

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BIBLIOGRAPHIES
PRESCHOOL-GRADE 3

AIDS TO MEDIA SELECTION FOR STUDENTS & TEACHER. Superintendent of Documents, 1971.

This bibliography of lists describes selected book lists and periodicals which review books, audio-visual materials, and multi-ethnic instructional materials. An excellent source for leads to reliable reviews.

BIBLIOGRAPHY OF BOOKS FOR CHILDREN - 1971. Association for Childhood Education International

Annotated. Excellent source for all areas of the elementary curriculum.

Carvajal, Joan & Martha Munzer. CONSERVATION EDUCATION: A SELECTED BIBLIOGRAPHY. Interstate, 1968.

CONSERVATION EDUCATION: A SELECTED BIBLIOGRAPHY Supplement. Interstate, 1971.

This is a classic bibliography that should be available to all teachers. In addition to books on natural resources and current environmental problems, there are lists of basic collections suitable for various grade levels.

CONSERVATION AND ENVIRONMENT FILMS 1971-72. U.S. Department of the Interior, Office of the Secretary.

A free annotated list of 90 16mm sound color films on conservation, environment, and related natural resource subjects. Films of special ecological significance are starred.

Gott, M.E. & Wailes, J.R. HIGH INTEREST-LOW VOCABULARY SCIENCE BOOKS. School of Education, University of Colorado, 1970.

A briefly annotated bibliography directed to the remedial reading teacher and the classroom teacher seeking interesting materials written at a low vocabulary level. Reading level grades 1-4, interest levels K-8. Many valuable references for environmental education programs.

A HANDBOOK OF LIBRARY AND AUDIO-VISUAL AIDS Levels One & Two, Levels Three and Four. Harcourt, 1970.

Annotated bibliographies compiled to go with the series Social Sciences: Concepts and Values (see Curriculum Materials Section). Very useful whether or not one uses the texts.

BIBLIOGRAPHIES PRESCHOOL - GRADE 3

Lussenhop, Martha. CHILDREN'S ECOLOGY BOOKS. Cooperative Children's Book Center, 1971.

Fiction and non-fiction books to help children develop awareness of the interrelationships of organisms to each other and their environment. Annotated.

Maranz, Kenneth. BIBLIOGRAPHY OF CHILDREN'S ART LITERATURE. NEA (National Education Association)

An annotated bibliography of children's literature designed to stimulate and enrich the visual imagination of the child. Leads here to many possibilities for heightening children's perception of their environment.

Moorachian, Rose. Editor. WHAT IS A CITY? Boston Public Library.

A gold mine of information! Annotated bibliography on books, pamphlets, periodicals, films, filmstrips, loops, recordings and realia. Contemporary themes and issues. Grade level indicated.

National Science Teachers' Association. ENVIRONMENTAL EDUCATION FOR EVERYONE. NSTA March, 1970.

A bibliography of curriculum materials for environmental studies. Materials were not evaluated by NSTA previous to publication. List is, however, a useful lead to much good material.

SCHOLASTIC TEACHER - October, 1971

SURVIVAL GUIDE TO ENVIRONMENTAL EDUCATION - annotated multimedia bibliography.

SCHOOL LIBRARY JOURNAL April 15, 1970.

"The Little House Syndrome vs. Mike Mulligan and Mary Anne", pp. 44-50. An article and annotated bibliography of juvenile books on ecology, conservation, and pollution. Includes fiction and picture books as well as non-fiction.

SELECTED MEDIA ABOUT THE AMERICAN INDIAN FOR YOUNG CHILDREN K-3. S.S. Cane et al. Massachusetts Department of Education.

Intended as an aid to the teacher and librarian in the selection of children's materials that realistically represent the Indian.

Also available from the same source--SELECTED BOOKS ABOUT THE AFRICAN-AMERICAN FOR VERY YOUNG CHILDREN K-2 by Jean E. Britton.

Serina Press GUIDE TO FILMS (16mm) ABOUT ECOLOGY, ADAPTATION AND POLLUTION.

The guide provides brief descriptions of 16mm films available from 28 producers, distributors, and university audio-visual media centers. Obviously not complete, this booklet nevertheless is an excellent source.

SOCIAL EDUCATION. April, 1972 Vol. 36, No. 4. National Council for the Social Studies.

The bibliography of population education materials in this issue, compiled by the Population Reference Bureau, is the most comprehensive published to date.

BOOKS

PreSchool - Grade 3

Aliki MY FIVE SENSES Crowell, 1962.

In simple words and pictures, the author develops the child's understanding of his senses and what he learns from them. See Musselman NATURE GAMES.

Related books: Garelick, May SOUNDS OF A SUMMER NIGHT
Kirn, Ann FULL OF WONDER
Seymour, Simon FINDING OUT WITH YOUR SENSES
Showers, Paul FIND OUT BY TOUCHING
Miles, Betty A DAY OF WINTER

Anno, Mitsumasa. TOPSY-TURVIES: PICTURES TO STRETCH THE IMAGINATION Walker, 1970.

In pictures of deceptive simplicity, optical illusions form structures in which curious little men can go upstairs to get to a lower place, hang pictures on the ceiling, and walk on walls. How would the room look if you could walk on the ceiling? See Environmental Geometry cited in Curriculum section.

Related book: A VERY SPECIAL HOUSE by Ruth Krauss

Bendick, Jeanne. A PLACE TO LIVE Parents', 1970.

Written in words easily understood by children, this introduction to ecology begins with the child and where he lives in the city and progresses to the communities of plants and animals. See also books cited under Busch & Howell.

Binzen, Bill. MIGUEL'S MOUNTAIN Coward, 1968.

A small city child operates in positive and successful ways to preserve the big pile of dirt left by a steam shovel in the local park.

Related books: Allen, Marjorie PLANNING FOR PLAY
Clymer, Ellen BIG PILE OF DIRT

Blough, Glenn O. WHO LIVES IN THIS MEADOW? McGraw-Hill, 1961.

An easy-to-read text combined with excellent illustrations by Jeanne Bendick make it possible to recognize the meadow's inhabitants and to understand why they are so well suited to their environment. Glenn Blough has written several other books emphasizing environmental adaptation, all published by McGraw-Hill.

Burch, Robert. A FUNNY PLACE TO LIVE. Viking, 1962.

Animals' homes are compared to the homes of people in a tale woven of fantasy and realism.

Related books: Fisher, Aileen BEST LITTLE HOUSE
Blough, Glenn WHO LIVES IN THIS HOUSE?

BOOKS PRESCHOOL - GRADE 3

Burton, Virginia Lee THE LITTLE HOUSE. Houghton, 1942

The concept of city growth is presented at picture book level in this story. It shows how neighborhoods change and what happens as cities grow and devour more and more open space. See Curriculum section for urban activities.

Related books: Coleman, Hilda PETER'S BROWNSTONE HOUSE
Ray, Bert WE LIVE IN THE CITY

Busch, Phyllis. PUDDLES AND PONDS: LIVING THINGS IN WATERY PLACES. World, 1969.

Puddles and Ponds describes a pond community. It is a part of a series, Discovering Nature, whose purpose is to present the elements of ecology and to help the young child to experience his environment aesthetically as well as intellectually.

Other titles in the series include Lions in the Grass, Once There was a Tree and City Lots. All of these can be used in the city.

Childcraft-The How and Why Library ABOUT ME. Vol. 14, Field Enterprises, 1972.

Have this colorfully illustrated volume available as a ready reference as children study the environment and the place of "me" in relation to all its aspects.

The Childcraft Annual, 1971 ABOUT ANIMALS is filled with exciting pictures and is an excellent source of accurate information.

Emberley, Ed. THE WING ON A FLEA. Little, Brown 1961.

A book about shapes that helps children see triangles, circles, squares, and rectangles in an infinite number of objects in nature. Both the Minnemast and Nuffield Math Projects have imaginative materials on shapes. See Curriculum Section.

Elkin, Benjamin. LOUDEST NOISE IN THE WORLD. Hale, 1954.

A picture story of a small boy's birthday wish with a surprise ending. James Daugherty's vigorous illustrations are wonderfully "noisy". Could well be used before going on a "listening walk" or when introducing noise pollution to slightly older children.

Ets, Marie Hall GILBERTO AND THE WIND. Viking, 1963.

A child can learn much about the wind as he reads about and looks at the lovely pictures of Gilberto playing with the wind. Take everyone out so they too can play with the wind.

Related books: Fisher, Aileen I LIKE WEATHER
Tresselt, Alvin HIDE AND SEEK FOG
Zolotow, Charlotte THE STORM BOOK

BOOKS PRESCHOOL - GRADE 3

Fisher, Aileen CRICKET IN A THICKET. Scribner, 1963

Aileen Fisher's love of nature comes bursting out of this collection of her poems. By seeing ordinary things in new ways she jolts her reader humorously into doing the same.

Related books: Cole, William I WENT TO THE ANIMAL FAIR
Fisher, Aileen I WONDER HOW, I WONDER WHY
Weiss, Rene A PAPER ZOO

Goudey, Alice E. THE DAY WE SAW THE SUN COME UP Scribner, 1961

The author and artist capture the child's wonder of the world around him: the sunrise and sunset, shadows that change from large to small, the clouds that hide the sun.

Related books: Carson, Rachel A SENSE OF WONDER (for adults)
Schneider, Herman & Nina FOLLOW THE SUNSET
Bradbury, Ray SWITCH ON THE NIGHT
Fisher, Aileen IN THE MIDDLE OF THE NIGHT

Hoban, Tana SHAPES AND THINGS Macmillan, 1970

Everyday objects shown as white solids against black introduce children to the beauty of form. See also the author's book Look Again as another way to develop visual perception.

Related books: Borten, Helen DO YOU SEE WHAT I SEE?
Emberley, Ed WING ON A FLEA
Lovoos, Janice DESIGN IS A DANDELION
Ungerer, Tomi SNAIL, WHERE ARE YOU

Hoffman, H. THE GREEN GRASS GROWS ALL AROUND Macmillan, 1968

In this traditional folksong, a little city boy has a small patch of grass in which a tiny tree with a tiny nest grows. Fun to dramatize and make up new verses.

For another song that's fun to sing, in a most colorful book, see Over in The Meadow by John Langstaff - animals and counting. Fun for Everybody, by Wrenn, shows what a natural experience song making is for young children.

Howell, R. R. CRACK IN THE PAVEMENT Atheneum, 1970

A picture book that encourages children to be neighborhood naturalists even if their neighborhood happens to be central Manhattan. Shows them where to discover delicate plants (cracks in the pavement), pillbugs (gas meters) and animal tracks.

Related books: Adrian, Mary SECRET NEIGHBORS:WILDLIFE IN A CITY LOT
Busch, Phyllis CITY LOTS
Beck, Barbara FIRST BOOK OF WEEDS

Behnke, Frances WHAT WE FIND WHEN WE LOOK UNDER ROCKS
Kirn, Ann LETS LOOK AT TRACKS
Waters, John F. NEIGHBORHOOD PUDDLE

Howell, Ruth Rea EVERYTHING CHANGES Atheneum, 1968
Text and photographs describe the changes accompanying the seasons throughout the year. The book develops the idea of continuity as well as change.
Related books: Behn, Harry ALL KINDS OF TIME
Polgreen, John SUNLIGHT AND SHADOW

Jacobs, Leland B. IS SOMEWHERE ALWAYS FAR AWAY? Holt, 1967
It is difficult for children to understand time and place; this book of poems takes that difficulty into account.

Keats, Ezra Jack THE SNOWY DAY Viking 1962
A small boy's ecstatic enjoyment of snow in the city. This is only one of many picture books that can be used to reinforce and extend the small child's natural curiosity and delight in his environment. The following list is intended only as a beginning. You will find many more.

Brown, Margaret Wise WAIT TILL THE MOON IS FULL Harper 1948
Carrick, Carol SWAMP SPRING Macmillan 1969
Ets, Marie Hall PLAY WITH ME Viking Press 1955
Freschet, Bernice THE OLD BULLFROG Scribners 1968
Garelick, May WHERE DOES THE BUTTERFLY GO WHEN IT RAINS Scott 1961
Grossbart, Francine A BIG CITY Harper 1966
Krauss, Ruth HAPPY DAY Harper, Row 1949
McCloskey, Robert MAKE WAY FOR DUCKLINGS Viking 1941
McCloskey, Robert TIME OF WONDER Viking 1941
Selsam, Millicent YOU AND THE WORLD AROUND YOU Doubleday 1963
Tresselt, Alvin WAKE UP CITY Lothrop 1957
Tresselt, Alvin WHITE SNOW, BRIGHT SNOW Lothrop 1956
Udry, Janice TREE IS NICE Harper 1956

Kipling, Rudyard THE ELEPHANT'S CHILD Follett, 1969
Picture book format, alive with the greens, blacks and browns of Africa. Set each child on the track of a discovery to satisfy his "'satiable curiosity" and then start his own collection of "Just So" stories - pictorial, verbal or written.

Krauss, Ruth. THE GROWING STORY. Harper, 1947.
Pictures and simple text describe a small boy who observed the growing of the grass, flowers and chickens, but did not realize that he had also grown until he tried on his last year's clothes.
Related books: Childcraft, Vol. 14 ABOUT ME
Krasilovsky, Phyllis THE VERY LITTLE BOY
McCloskey, Robert ONE MORNING IN MAINE
Myler, Rolf HOW BIG IS A FOOT
Selsam, Millicent WHEN AN ANIMAL GROWS

Leaf, Munro WHO CARES? I DO. Lippincott, 1971.
The author's usual light-hearted style drives home the message of how "Droppers", "Wreckers", and "Spoilers" mess up the environment and what can be done about it.
Related books: Bendick, Jeanne A PLACE TO LIVE
Orlowsky, Wallace WHO WILL WASH THE RIVER?

Lewis, Richard THE PARK Simon&Shuster, 1968.
Softly evocative photographs of nature in the city. Short captions help to catch the mood and season. Both adults and children need to become more aware of the natural beauty in the city. Use a book like this as a starting point, then go out and LOOK.

Mizumura, Mazue IF I BUILT A VILLAGE Crowell, 1971.
Three ideal communities - a village, a town, and a city, are skillfully described and visualized in this picture book. Follow up with children's own ideas of an "ideal" community. All kinds of possibilities for art projects and mapping.

Ogle, Lucille I HEAR American Heritage, 1971.
Loud and low, silly and serious - sounds and games for listening and learning. See also Aliki's MY FIVE SENSES cited earlier.
Related book: Wolff, Janet LET'S IMAGINE SOUNDS.

O'Neill, Mary HAILSTONES AND HALIBUT BONES: ADVENTURES IN COLOR Doubleday, 1961.
Clever imagery and word play in verses heightened by Leonard Weisgard's illustrations. Lends itself to art and language arts as well as natural history.

BOOKS PRESCHOOL - GRADE 3

Rhodes, Dorothy HOW TO READ A CITY MAP Elk Grove, 1967.
Starting with the near and familiar, this step-by-step development of map making and reading offers understanding to young children. Photographs juxtaposed with maps of the same territory make meanings clear even to the nonreader. Useful with such curriculum units as DOING GERMANTOWN and IF YOU LIVE IN THE CITY cited in this bibliography.
Related books: Estep, Helen GOOD TIMES WITH MAPS
Hine, Al WHERE IN THE WORLD DO YOU LIVE?
Rinkoff, Barbara A MAP IS A PICTURE

Selsam, Millicent SEE THROUGH THE FOREST. Harper, 1956.
Emphasis is on the balance of nature. The levels of the forest are compared with the floors of a tall building. The animals at each level are described and the conditions which keep them there. SEE THROUGH THE SEA is similar in format and equally useful. Selsam's valuable books should be well known in every classroom. These are only two titles from a lengthy list written by her.

Shapp, Martha & Charles LET'S FIND OUT ABOUT HOUSES Watts, 1962.
Helps children learn that geography, climate and resources determine kinds of houses in which people live.
Related books: Burns, William A. A WORLD FULL OF HOMES
Carter, Katherine TRUE BOOK OF HOUSES
Hawkinson, John LITTLE BOY WHO LIVES UP HIGH
Rudofsky, Bernard ARCHITECTURE WITHOUT ARCHITECTS

Zolotow, Charlotte THE SKY WAS BLUE. Harper, 1963
Relates the parents' past, family generations and family tree to show how people's living habits change with time.
Related book: Lawson, Robert THEY WERE STRONG AND GOOD

BOOKS FOR TEACHERS
Activity Guides
PRESCHOOL - GRADE 3

Comstock, Anna B. HANDBOOK OF NATURE STUDY Cornell University Press, 1939.

A classic among general nature activity books, written by an elementary school teacher for teachers. Nature activities, for indoors and outdoors, described in detail. Drawback in that interrelationships are not emphasized but does contain materials that cannot be found elsewhere - e.g., domestic animals.

Coleman, Statis N. ANOTHER DANCING TIME Day, 1957

Simple scores to accompany the earliest "play dancing" done by small children. Pieces are about birds, frogs, balls, merry-go-rounds. Easy to go from here to "dancing" the wind, autumn leaves, a growing plant.

Hug, John W. & Phyllis J. Wilson CURRICULUM ENRICHMENT OUTDOORS Harper & Row, 1965.

More than 350 suggestions for outdoor activities to enrich every area of the curriculum. A listing of activities by grade level (1-9) is a useful addition. Currently out-of-print but certainly worth pursuing in libraries.

Linderman, Earl W. DEVELOPING ARTISTIC & PERCEPTUAL AWARENESS William C. Brown, 1964.

A concise well illustrated book, with emphasis on the preschool and elementary levels. It contains good coverage of the whole area of motivation and offers specific examples for the beginner.

Morse, Jim and Nancy Matthews THE SIERRA CLUB SURVIVAL SONGBOOK Sierra Club, 1971

A wide sampling of the best environmental songs in America today. The lyrics and music for guitar are included. Certainly a must for all school libraries. Current musical selections can be used to introduce many aspects of environmental problems.

Musselman, Virginia W. LEARNING ABOUT NATURE THROUGH GAMES Stackpole, 1967

Playing games is one more excellent means of developing environmental awareness. This book offers many suggestions that will enliven all aspects of the curriculum. Bring it to the attention of your gym teacher too.

BOOKS FOR TEACHERS-Activity Guides Preschool-Grade 3

Myers, R. E. & E. P. Torrance CAN YOU IMAGINE? Ginn, 1965
A wonderfully rich source of imaginative ideas to encourage children to think creatively and critically.

Peck, Ruth L. ART LESSONS ON A SHOESTRING Parker, 1968
New ideas for practical art lessons in the elementary school. Using these sixty easy-to-follow, imaginative lesson plans you can recycle all manner of materials from home and yard.

Pitcher, Evelyn et al. HELPING YOUNG CHILDREN LEARN Merrill, 1966
This book's emphasis is on experimentation, self-direction, appreciation and awareness, as well as the implementation of appropriate skill learnings. Contains a wealth of practical suggestions.

Subarsky, Zachariah et al. LIVING THINGS IN FIELD AND CLASSROOM Minnesota School Math & Science Center University of Minnesota, 1969
A handbook for teachers of early elementary grades to help them give children firsthand experiences with living things and to coordinate outdoor teaching with the indoor curriculum.

Van Matre, Steve ACCLIMATIZATION Towering Pines, Eagle River, Wis., 1970
A sensory approach to ecological envolvement that can be used at any grade level. Suggestions for activities and techniques for control in an outdoor situation.

Wensberg, Katherine EXPERIENCES WITH LIVING THINGS - See Curriculum Materials section.

BOOKS FOR TEACHERS
Background Reading
PRESCHOOL-GRADE 3

Buchsbaum, Ralph & Mildred BASIC ECOLOGY. Boxwood, 1957.
As the title indicates, a basic introduction to ecology for beginners in the field. Useful bibliography that includes journals and textbooks as well as titles under special aspects of ecology.

Farb, Peter and the Editors of Life ECOLOGY. Silver, Burdett, 1963.
Excellent introduction to ecology covering all aspects of plant-animal-man relationships. Final chapter deals briefly with historic attitudes toward ecological concepts and current awareness of need for conservation measures. Many full-page illustrations throughout make this useful for browsing for all age groups. A map and descriptive notes of the major biomes of the world appear at the end of text. Also, a bibliography with classified entries. The other volumes in this Life Nature Library are a valuable addition to any classroom.
OUR LIVING WORLD OF NATURE, McGraw-Hill, is another excellent series.

Metcalf, Laurence E., ed. VALUES EDUCATION: RATIONALE, STRATEGIES AND PROCEDURES. 41st Yearbook National Council for the Social Studies, 1971.
Professor Metcalf states in his introduction that this year book is difficult - "It is a book that will have to be read and reread, and it can't really be understood except as its readers try out its ideas in some kind of instructional context". Teaching strategies and procedures are presented, thereby encouraging and assisting the teacher to begin the absolutely essential task of teaching students how to make rational, defensible value judgments.
For further reading: Disch THE ECOLOGICAL CONSCIENCE: VALUES FOR SURVIVAL.

Storer, John WEB OF LIFE New American Library, 1956.
Explains in simple language and with great clarity the complex term "Balance of Nature".

Terry, Mark TEACHING FOR SURVIVAL Ballantine, 1971.
"Those who are in a position to teach and to lead others to learn and act, can hardly find a better guide to environmental action than this richly detailed discussion..."

BEYOND THE CLASSROOM (trial edition) Massachusetts Audubon Society

A guide to the use of the urban environment as an instructional medium. Package includes a general guide to urban environmental education; 4 packets of activity cards - one for each of the grade levels K-3, 4-6, 7-9, 10-12; and a guide to the natural history of cities.

CHANGING AND UNCHANGING PROPERTIES Minnesota School Mathematics & Science Teaching Project, University of Minnesota, 1966.

Teaching suggestions to help children grasp the concepts of change and continuity. Useful in conjunction with unit on Color and Change cited in this section. This is only one of many units in the MinneMast Project for grades K-3 which are applicable to environmental education.

COLOR AND CHANGE Environmental Science Center, Minnesota

Children become aware of color as an important property of natural materials and color change as a significant indicator of biological alteration of these materials. Suggested activities for all seasons.

This is one of several useful units available from the Environmental Science Center. Request an annotated list of their publications.

DOING GERMANTOWN: A GUIDE TO STUDYING URBAN NEIGHBORHOODS FOR ELEMENTARY CHILDREN. Instructional Services, School District of Philadelphia, 1970.

This guide offers plans for an enrichment program in urban exploration involving second graders and junior and senior high school students. The procedural aspects are clearly delineated. The suggested activities could be adapted to any elementary grade level.

EDUCATION FOR SURVIVAL North Jersey Conservation Foundation, 1970.

A social studies and science curriculum for Grade 1,2,&3, developed by teachers, that offers a wide variety of classroom experiments, suggestions for field trips and supplemental activities from which the teacher might choose. Environmental concepts, as they relate to the experiences of the children, are well-thought out and successfully incorporated. There are two particularly interesting sections - "Comparison of Food & Health Practices of Indians, Early Settlers & People Today" and "Conservation Practices of Indians, Early Settlers & People Today". See also the March, 1972 issue of Science & Children.

ENVIRONMENTAL GEOMETRY - Nuffield Mathematics Project, Wiley, 1968.

Environmental Geometry is designed to make teachers and their students aware of the environment as a source of mathematical activities. This guide contains a wealth of suggestions for investigations.

A booklet Antidotes to Rote from the publisher describes several other books in this series that are equally valuable.

GEOGRAPHY IN PRIMARY SCHOOLS. The Geographical Association, 1970.

A British paperback handbook for elementary school teachers outlining techniques and suggesting activities with interdisciplinary, environmental emphases.

GUIDELINES FOR ENVIRONMENTAL SENSITIVITY. Eleanor Bennet et al. Pennsylvania Department of Education, 1969.

Attractive well-thought out booklet. Useful in explaining objectives of environmental education to parents of Grades K-6. Also from same source School Site Development for Outdoor Education.

IF YOU LIVE IN THE CITY, WHERE DO YOU LIVE? National Instructional Television, 1970.

Although this social studies material was developed for Grades 4-6, there is much that could be adapted to the lower grades.

The five basic concepts are 1) the exterior environment of the city, (2) internal urban space and the use made of it, (3) the changes that take place over a period of time in an urban environment, (4) the special needs city people have in terms of space and facilities, and (5) the resolution of conflicting needs in the best interests of a neighborhood.

The twenty-five activity cards can be used independently of the films and offer a wide variety of suggestions.

ENVIRONMENTAL EDUCATION: SOCIAL STUDIES SOURCES AND APPROACHES Martha T. Henderson. Oct. 1970 ERIC Clearinghouse for Education and Social Science.

A sampling of programs which social studies teachers will find provocative. Detailed comments on projects for elementary and secondary levels followed by a bibliography.

CURRICULUM MATERIALS PRESCHOOL - GRADE 3

EXPERIENCES WITH LIVING THINGS: AN INTRODUCTION TO ECOLOGY FOR FIVE TO EIGHT YEAR OLDS Katherine Wensburg. Beacon Press, 1966.

An "experience first" approach to ecology with a rich variety of suggestions for explorations and activities stressing the interrelationships in nature. A story concludes each topic. Excellent bibliographic references are listed for each experience.

MAINE ENVIRONMENTAL EDUCATION PROJECT Dean Bennett, Coordinator.

A theme environment has been chosen for each grade level, "Within the theme environment, students will be encouraged to interact with the environment or utilize resources in interesting ways and, in so doing, they will become aware of, or guided in, the identification of past, present, or pending environmental problems."

MAN AND HIS ENVIRONMENT: AN INTRODUCTION TO USING ENVIRONMENTAL STUDY AREAS Association of Classroom Teachers, NEA 1970.

A new interdisciplinary approach to environmental education at all school levels. It provides practical suggestions for classroom teachers for use of the environment to help students understand relationships between man and his environment. A unique aspect of this approach is the utilization of five "strands" which can be applied to any subject area. A filmstrip also entitled Man and His Environment will orient administrators, teachers and the public to this strand approach.

MAN IN HIS ENVIRONMENT Coca Cola Co.

This is a kit distributed by Coca Cola consisting of two simulation games - Make Your Own World and Mars I-Spacecraft. The latter is best suited to the lower elementary grades. The Spaceship earth concept is illustrated as children work to get the two crews back to earth after one ship crashes, using the limited food, air, space and water.

NUFFIELD JUNIOR SCIENCE PROJECT Wm. Collins Sons, 1967.

The Nuffield Junior Science Project is a large scale British experiment in education, in which young children were introduced to the excitement of practical investigation and scientific observation. Teacher's Guide 1 sets out the general educational thinking of the Project. Subsequent chapters interpret that thinking in terms of practical classroom situations.

Teacher's Guide 2 presents thirty-eight live case histories, each a faithful record of a project undertaken in school. A flow chart accompanies each project showing graphically its starting point and the varied work following from it. These charts vividly point up the interdisciplinary emphasis of the Project.

CURRICULUM MATERIALS PRESCHOOL - GRADE 3

There are three background booklets, and two other books - Apparatus and Animals and Plants - also available. All offer many excellent ideas.

OPERATION NEW YORK: USING THE NATURAL ENVIRONMENT OF THE CITY AS A CURRICULUM RESOURCE Board of Education, City of New York, 1969.

Valuable suggestions for teachers in any urban area. "The interrelationships of living things, including man, with their physical surroundings are understood as boys and girls explore the many 'little environments' which are found within the city."

OUR WORKING WORLD Science Research Associates, 1966.

A social studies series that draws on economics, political science, anthropology, geography, architecture, city planning and some history.

The second grade book Neighbors at Work leads the student to an understanding of the individual as an agent of change. The third grade Cities at Work leads the children to feel they are discovering the causes of the cities' problems. Use these in conjunction with Doing Germantown and If you Live in the City, Where Do You Live? cited in this section. The teacher's resource books for this series, Our Working World, are very good.

OUTDOOR EDUCATION ON YOUR SCHOOLGROUNDS N. F. Marsh, Office of Conservation Education, Sacramento, Cal. 1967.

An excellent summary of objectives of outdoor education, this small paperback could help sell the idea to administrators and school committeemen.

POPULATION CURRICULUM STUDY K-12 University of Delaware, 1971.

A conceptual scheme based on the belief that "man is a part of a natural system, the Earth, and is ultimately subject to the limits of the system." Detailed bibliography of books, periodicals, and films also available.

PROGRAMS IN ENVIRONMENTAL EDUCATION National Science Teachers' Association.

Describes over 50 programs in schools around the country. Programs include all formats and grade levels. Only programs now underway and able to distribute materials and/or information have been included.

RESOURCE UNIT ON POPULATION PRESSURE Baltimore City Public Schools, Bureau of Publications, Baltimore.

A Teacher's guide for the teachers of the Baltimore Public Schools at all levels. The pamphlet attempts to alert teachers to population pressure at local to international levels. Background information is presented, suggested approaches given, and a bibliography of instructional materials is included.

SCHOLASTIC EARTH CORPS ENVIRONMENTAL/ECOLOGY STUDY PROGRAM Scholastic, 1971.

Multi-media units directed to fostering environmental awareness. When used in conjunction with some of the other curricula listed here that emphasize discovery and inquiry, these materials will be useful.

SCIENCE CURRICULUM IMPROVEMENT STUDY (SCIS) Robert Karplus, Dir. Rand-McNally.

This is an ungraded, sequential physical and life science program for the elementary school. The teaching strategy is for children to explore selected science materials. They are encouraged to investigate, to discuss what they observe, and to ask questions. The SCIS teacher has two functions: to be an observer and to be a guide. Materials are of four types: (1) Teacher's Guide, (2) Pupil Manuals, (3) Laboratory Materials, (4) Films. Titles of some of the units now available in commercial editions from Rand-McNally: Life Cycles, Organisms, Interaction and Systems, Populations, Environments, Ecosystems.

SCIENCE IN CITY AND SUBURB: EXPERIMENTS IN YOUR NEIGHBORHOOD American Education Publications, 1969.

A newsprint publication filled with many good science activities that use the immediate environments of streets, buildings, etc. as a source of study. Can be used in conjunction with Doing Germantown cited earlier.

SMAC/SCIENCE & MATHEMATICS EDUCATION ANALYSIS CENTER ERIC: HOW TO USE IT FOR ENVIRONMENTAL EDUCATION

Request this report from SMAC to obtain complete information on the retrieval of reports, curriculum guides, journal articles, etc. on environmental education. A complete listing of ERIC Clearinghouses is given. The newsletters from these Clearinghouses are good leads to new materials for the school librarian and curriculum planner.

CURRICULUM MATERIALS PRESCHOOL - GRADE 3

SOCIAL EDUCATION - January 1971, Vol. 35, No. 1 National Council for the Social Studies.

This issue of the NCSS journal is entirely devoted to The Environmental Crisis and incorporates an interdisciplinary approach. There is also a lengthy section on sources and resources and instructional media.

SOCIAL EDUCATION, April, 1972, Vol. 36, No. 4 National Council for the Social Studies.

This issue is devoted to population education and contains the widest multi-media coverage yet given to this topic.

THE SOCIAL SCIENCES: CONCEPTS AND VALUES Harcourt, 1970.

This K-6 series is one of the best of the very few social studies texts emphasizing basic ecological concepts. "Concepts and values - the concepts of man as a social being, and the values that make him human - are the substance of this program. The sustaining theme is responsibility - responsibility for oneself, for mankind and for the environment".

SOME GUIDES TO DISCOVERY ABOUT ELM TREES, OWLS, COCKROACHES, EARTHWORMS, CEMENT AND CONCRETE Phyllis Busch, 1969 ERIC Report #ED035540 (see SMAC)

The introduction emphasizes the need for environmental and conservation education, and advocates an inquiry approach. Outdoor resources available to every school are listed. Detailed suggestions are made for investigations, references are cited and student activities are suggested.

TEACHING SCIENCE WITH GARBAGE A.& V. Schatz. Rodale, 1971

An interdisciplinary approach that includes mathematics, science and social studies. The materials needed are simple, inexpensive, readily available and familiar. The activities offer a positive approach to the study of pollution.

URBAN DISCOVERY MANUAL Phyllis Busch, 1969 ERIC Report #ED033844 (see SMAC).

Presents 75 suggestions for investigating, in grades K-6, such common urban resources as trees, seeds, polluted air, rocks, and insects.

WHAT'S IN YOUR ROOM? National Audubon Society.

This is a flannel board story about the source of things we use everyday--furniture from trees, wool from sheep, etc. Full size patterns for the cut-outs are included. Children can readily make up their own flannel board stories to illustrate their environmental investigations.

FILMSTRIPS
PRESCHOOL - GRADE 3

ANIMALS AND PLANTS OF THE CITY (Communities of Living Things Series) McGraw Silent, Color.

Good introduction to those animals and plants which have adapted to urban life.

The following are several very good series on the city that fit in well with all aspects of the primary curriculum:

A Child's Life in the Big City	Hudson
A City is Many Things	Churchill
Living Things in the City	Encyclopedia Britannica
We Take a Trip	McGraw

CONSERVATION IN THE CITY Encyclopedia Britannica. silent, color

Part I - Underfoot; Part II - Eyelevel; Part III - Overhead

A new and interesting approach to looking at the city environment. Each film presents a number of different areas for study and discussion; nature study, ecology, conservation and problems (pollution) are some of these. Color is very good as are the questions and suggestions for activities. Some of the vocabulary may need explaining.

DISCOVERING LIFE AROUND US Encyclopedia Britannica. silent, color

Shows relationship between living things and introduces some ecological concepts. Size relationships in film are not true and some vocabulary will need explaining. Can be used to introduce discussion of familiar areas or as a prelude to a field trip. Series titles: A Visit to the Farm; A Visit to the Garden; A Visit to the Pond; A Visit to the Seashore; A Visit to the Woods.

LET'S READ AND FIND OUT Thomas Y. Crowell Co. Sound, color.

These sound filmstrips are based on the successful Let's Read and Find Out series of books written by such well-known authors as Roma Gans, Judy Hawes, & Paul Showers. Some of the titles - Follow Your Nose, My Five Senses, Ducks Don't Get Wet, Birds Eat & Eat & Eat. Having the books available will reinforce the filmstrips.

LIVING ON MAN'S EARTH Encyclopedia Britannica
MAN'S EARTH HOME Encyclopedia Britannica
WORKING TOGETHER ON MAN'S EARTH Encyclopedia Britannica

Three series in color that help primary grade children to understand how people of their communities interact with each other and with the physical world.

FILMSTRIPS PRESCHOOL - GRADE 3

SIGHT AND SOUND DISCOVERY TRIPS Sound, color Eyegate

A series of enjoyable listening experiences including Sounds of the City, Sounds by the Sea, Sounds at the Zoo. Eye Gate House has a unique evaluation tool "Quickstrips" - printed directly from the filmstrip, they provide a simple, quick, accurate and free method to preview

WHERE DOES THE BUTTERFLY GO WHEN IT RAINS? Mary Garelick Weston Woods color, silent or sound

The text is built on speculation and partial answer, leaving the viewer with a multitude of other questions as well as a real desire to find out just where the butterfly does go. The illustrations convey the atmosphere. This is one of the many Weston Woods filmstrips that are faithful adaptations of the finest picture books, including Caldecott Medal Winners. A picture-cued booklet containing the story is provided with each filmstrip. For the sound filmstrip a related phonograph record features an expert story teller.

A CITY IS... (Urban Education Study Series) Day, 1965
Brought together in a large spiral album, these photographs express the meaning of cities in terms of people, events, geographical influences and change. Extremely valuable is a comprehensive Teacher's Guide.

CITY WORKERS (City Visit Series) Watts, 1969
Large black and white action photographs. The package includes a valuable Teacher's Manual prepared by Lee Hopkins of the Bank Street College of Education and is coordinated with the book City Workers by Jean Rowe.

ECOLOGY WHYS Carnegie Museum
Two sets, of six charts each, on heavy cardboard 20" x 24". Charts cover such subjects as Animal Homes in Trees, Soil - How It Is Made, What Good are Trees, Succession on a Fallen Log. Accompanying teacher's manuals contain a lesson plan, follow-up activities, a glossary and a reading list.

INSTRUCTOR ECOLOGY POSTER SETS Instructor Publ. Inc., 1970
This poster series was designed for use by teachers and pupils of elementary grades. The teacher's guide provides background information and suggested activities for each poster. Another series, similar in format, is entitled Eco-Problems.

LIFE EDUCATIONAL REPRINTS Life Education Program
The editors of Life have reprinted many of the pictorial essays for use in schools. The series from the World We Live In is an excellent source of pictures for ecological studies at any grade level.

NATIONAL WILDLIFE WEEK National Wildlife Federation
An annual event in March which focuses attention on different aspects of wildlife each year. Kits, which include posters and suggested activities, are available to teachers free of charge.

STUDY PRINTS Producer - S.V.E.
18" x 13" photographs on heavy stock in sets of 8. On the reverse of each print is factual information, questions, and suggestions for use. The Basic Science Series covers plants, animals, cloud forms, and land forms of running water. Urban Life Series introduces the child to some of the ways the people of the city work and play. Most of the prints can be adapted to use through Grade 6.

MAGAZINES
PRESCHOOL - GRADE 3

AUDUBON

National Audubon Society, 950 Third Avenue, New York, N.Y. 10026. $10.00 with individual membership in Society. Bi-monthly, 130 pages, noted for its excellence of material and color photography. A wonderful source for a picture file.

THE CONSERVATIONIST State of New York, Dept. of Environmental Conservation, Albany, N.Y. 12201. $2.00 per year subscription, $5.00 for three years. Bi-monthly, contents include students' page and How-to-do-it series. This is probably the best magazine from a State "Conservation" Department. A Teacher's Packet is available containing a series of colorful pictures and teaching suggestions.

ECO-NEWS Environmental Action Coalition, Inc., East 49th Street New York, N.Y., 10017. $2.00 per year. Monthly September-June. A young people's environmental newsletter, urban oriented. Each issue centered on one theme articles, activities, reading list, free materials.

THE JOURNAL OF ENVIRONMENTAL EDUCATION Dembar Educational Research Services, Box 1605, Madison, Wisconsin 53701, $7.50 subscription, $5.00 for students, $2.00 single copy. Quarterly, 48 pages, black and white, no photographs. Vital addition to professional libraries in every school.

KIDS Kid's Publishers, Inc., 777 Third Avenue, New York, N.Y. 10017. $5.00 per year subscription, 50¢ each. "The magazine by kids for each other;" poems, stories, cartoons, photos, paintings and more. 10 issues per year, 50 pages.

NATIONAL GEOGRAPHIC National Geographic Society, 17th & M Sts., N.W., Washington, D.C. 20036. $7.50 per year, $1.00 single copy. Monthly. Rich source of material for social studies.

NATIONAL WILDLIFE National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036. $6.50 per year with Associate Membership. Bi-monthly, 55 pages, noted for many color photographs. There are Environmental Education materials available, also a kit for National Wildlife Week. "Ideas for Learning" a Teacher's guide to National Wildlife is now being published. NWF also publishes International Wildlife, similar in format and with "Ideas for Learning" guide free to teachers.

MAGAZINES Preschool - Grade 3

PACK-O-FUN John M. Clapper, 14 Main St., Parkridge, Ill. 60068. $5.00 per year ($10.00 for 3 years) Monthly. Arts and crafts projects with holiday and/or seasonal emphasis. A wealth of ideas for recycling all manner of materials.

RANGER RICK'S NATURE MAGAZINE National Wildlife Federation, 1412 16th St., N.W., Washington, D.C. 20036. $6.00 per year. Monthly (except June and September) for young people, 48 pages, many color photographs. Vital addition to the school library. Teacher's guide available.

SCHOOL ARTS, 72 Printer Building, Worcester, Mass. 01608. $7.00 per year. Monthly September-June. The art magazine for teachers with new ideas, latest techniques and practical help. Articles and activities to increase students' environmental awareness.

SCIENCE AND CHILDREN National Science Teachers Assn., 1201 16th St., N.W., Washington, D.C. 20036. $4.00 per year subscription, 75¢ single copy. Published September-December and February-May, 30 pages black-and-white. Many valuable teaching suggestions.

THE WEEWISH TREE American Indian Historical Society, 1451 Masonic Ave., San Francisco, Ca. 94117. $6.50 per year, six issues. Written, illustrated and produced by an all-Indian organization. Stories, games, artwork, articles about Indian culture and more.

ADDRESSES

American Education Publications
Xerox Education Group
Education Center
Columbus, Ohio 43216

American Heritage Press
(Orders to McGraw-Hill, Inc.)

Association for Childhood
Education International
3615 Wisconsin Ave., N.W.
Washington, D.C. 20016

Association of Classroom Teachers
National Education Association
1201 Sixteenth St., N.W.
Washington, D. C. 20036

Atheneum Publishers
122 E. 42nd Street
New York, N.Y. 10017

Ballantine Books, Inc.
101 5th Avenue
New York, New York 10003

Baltimore City Public Schools
Bureau of Publications
Baltimore, Md. 21218

Beacon Press
25 Beacon Street
Boston, Mass. 02108

Board of Education of the City of
New York
Bureau of Curriculum Development
130 West 55th Street
New York, N.Y. 10019

Boston Public Library
Copley Square
Boston, Mass. 02117

Boxwood Press
Box 7171
Pittsburgh, Pa. 15213

Carnegie Museum
4400 Forbes Avenue
Pittsburgh, Pa. 15213

Churchill Films
662 North Robertson Blvd.
Los Angeles, Ca. 90069

Cooperative Children's Book Center
411 West, State Capitol
Madison, Wis. 53702

Cornell University Press
124 Roberts Place
Ithaca, N.Y. 14850

Coward, McCann & Geoghegan Inc.
200 Madison Avenue
New York, N.Y. 10016

John Day Co.
62 W. 45th Street
New York, N.Y. 10036

Dean B. Bennett
Maine Environmental Education
Project
Intermediate School
Yarmouth, Maine 04096

Doubleday and Co., Inc.
501 Franklin Avenue
Garden City, N.Y. 11530

Elk Grove Press
17420 Ventura Blvd.
Encino, Ca. 91316

Encyclopedia Britannica Educational
Corp.
425 N. Michigan Avenue
Chicago, Ill. 60611

Environmental Science Center
5400 Glenwood Avenue
Golden Valley, Minn. 55422

ADDRESSES

ERIC Clearinghouse for Education and Social Sciences
970 Aurora
Boulder, Col. 80302

Eye Gate House, Inc.
146-01 Archer Avenue
Jamaica, N.Y. 11435

Field Enterprises Educational Corp.
Merchandise Mart Plaza
Chicago, Ill. 60654

Follett Publishing Co.
1010 W. Washington Blvd.
Chicago, Ill. 60607

The Geographical Association
343 Fulwood Road
Sheffield S10 3BP
England

Harcourt Brace Jovanovich Inc.
757 Third Avenue
New York, N.Y. 10017

Harper & Row Publishers, Inc.
49 E. 33 Street
New York, New York 10016

Hale, E.M. & Co.
1201 S. Hastings Way
Eau Claire, Wis. 54701

Holt, Rinehart and Winston Inc.
383 Madison Avenue
New York, New York 10017

Houghton Mifflin Co.
2 Park Street
Boston, Mass. 02107

Hudson Photographic Industries, Inc.
Irvington-On-Hudson
New York 10533

Interstate
19 N. Jackson Street
Danville, Ill. 61832

Instructional Services, School District of Philadelphia
Philadelphia, Pa.

The Instructor Publications, Inc.
Dansville
New York 14437

Jam Handy Organization
2821 E. Grand Blvd.
Detroit, Mich. 48211

Life Education Program
Box 834, Radio City P.O.
New York, N.Y. 10019

J. B. Lippincott Co.
E. Washington Square
Philadelphia, Pa. 19105

Little, Brown & Co.
34 Beacon Street
Boston, Mass. 02106

Lothrop, Lee and Shepherd Co.
105 Madison Avenue
New York, New York 10016

McGraw-Hill
330 W. 42 Street
New York, New York 10036

The Macmillan Co.
366 Third Avenue
New York, N.Y. 10022

Massachusetts Audubon Society
South Great Road
Lincoln, Mass. 01773

ADDRESSES

Mass. Department of Education
Bureau of Curriculum Innovation
182 Tremont Street
Boston, Mass. 02103

Merrill, Charles E., Pub. Co.,
1300 Alum Creek Drive
Columbus, Ohio 43216

Minnesota School Mathematics &
Science Center
720 Washington Ave., S.E.
Minneapolis, Minn. 55455

MIT Press
28 Carleton Street
Cambridge, Ma. 02142

National Audubon Society
Educational Services
950 Third Avenue
New York, N.Y. 10022

National Council for the Social
Studies
1201 Sixteenth St., N.W.
Washington, D. C. 20036

National Education Association
Publications
1201 Sixteenth St., S.W.
Washington, D. C. 20036

National Instructional Television
Suite 217
1346 Connecticut Ave., N.W.
Washington, D. C. 20036

National Science Teachers' Assn.
Publications Department
1201 Sixteenth St., N.W.
Washington, D. C. 20036

New American Library
1301 Avenue of the Americas
New York, N. Y. 10019

North Jersey Conservation
Foundation
300 Mendham Road
Morristown, N.J. 07960

Nuffield Mathematics Project
(See Wiley)

Office of Conservation Education
The Resources Agency
Sacramento, California 95814

Parents Magazine Press
52 Vanderbilt Ave.,
New York, N.Y. 10017

Parker Publishing Co.,
West Nyack, New York 10994

Pennsylvania Department of Educ.
Dr. Irvin T. Edgar
Box 911
Harrisburg, Pa. 17126

Rand McNally & Company
Box 7600
Chicago, Illinois 60680

Rodale Books, Inc.
33 E. Minor Street
Emmaus, Pa. 18049

Scholastic Book Services
904 Sylvan Ave.
Englewood Cliffs, N.J. 07632

Scholastic Teacher
902 Sylvan Ave.,
Englewood Cliffs, N.J. 07632

School Library Journal
1180 Avenue of the Americas
New York, N.Y. 10036

School of Education
University of Colorado
Boulder, Colorado 80302

ADDRESSES

Science Research Associates
259 East Erie Street
Chicago, Ill. 60611

Scribners, Charles, Sons
597 Fifth Avenue
New York, N.Y. 10017

Serina Press
70 Kennedy Street
A exandria, Va. 22305

Sierra Club
1050 Mills Tower
San Francisco, Ca. 94104

Silver Burdett Company
250 James Street
Morristown, N. J. 07960

Simon & Schuster, Inc.
630 Fifth Avenue
New York, N.Y. 10020

Singer Society for Visual Education
1345 Diversey Parkway
Chicago, Illinois 60614

SMAC/SCience & Mathematics
Education Analysis Center
140 West Lane Avenue
Columbus, Ohio 43221

Society for Visual Education
(See Singer Society for Visual
Education)

Stackpole Books
Cameron & Kelker Streets
Harrisburg, Pa. 17105

Thomas Y. Crowell Company
666 Fifth Avenue
New York, N.Y. 10019

U.S. Department of the Interior
Office of the Secretary
National Park Service
18th Between "C" & "D" Streets
Washington, D. C. 20240

University of Delaware
College of Education
Newark, Delaware 19711

Viking Press, Inc.
625 Madison Avenue
New York, N.Y. 10022

Walker & Company
720 Fifth Avenue
New York, N.Y. 10019

Watts, Franklin, Inc.
575 Lexington, Avenue
New York, N.Y. 10022

William C. Brown Co., Publishers
135 S. Locust
Dubuque, Iowa 52003

William Collins Sons, & Co.,
100 Lesmill Road
Don Mills, Ontario

World Publishing Company
110 East 59th Street
New York, N.Y. 10022

AIDS TO ENVIRONMENTAL EDUCATION

GRADES 4 - 6

Environmental Education is concerned with the nature of man, the nature of the biosphere in which we live and the interrelationships that exist between man and biosphere.

In a day and age when the results of the human arrogance, that sets man outside of the beautifully interrelated systems of nature, are violently apparent in the form of pollution, overpopulation, with its many resultant strifes, environmental degradation and over-exploitation of limited resources, it is imperative that people become educated to the point of a basic environmental literacy. It is a task for the total educational continuum. Teachers and interpreters at every level will have to do their part.

In grades four to six, children are pulling together many previous experiences and blending them with new ones in the formation of basic concepts and conceptual schemes. Emphasis can be placed on helping the youngsters analyze their experiences and synthesize them. They need many concrete examples from which to make their basic abstractions.

As teachers and librarians read this bibliography many of the materials, particularly the books, will be familiar. This should help to make it clear that Environmental Education is not a new subject that must be added to the curriculum but rather an "umbrella" under which all the disciplines can be gathered and thus interrelated.

This series of AIDS was compiled for the U.S. Office of Education by the librarian of the Hatheway Environmental Education Institute, the education division of the Massachusetts Audubon Society. They represent a select, rather than comprehensive, listing of materials prepared for the information and convenience of teachers. Selection of material for these lists by either Massachusetts Audubon Society or the U.S.O.E. does not constitute official endorsement or approval of it to the exclusion of other which may be suitable.

July, 1973

Hatheway Environmental Education Institute
Massachusetts Audubon Society, Lincoln, Ma. 01773

SE 007 617

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BIBLIOGRAPHIES
GRADES 4-6

AAAS SCIENCE BOOK LIST FOR CHILDREN 3rd ed., American Association for the Advancement of Science, 1972

A selected and annotated list of science and mathematics books for children in elementary schools. A most useful classroom tool when students, stimulated by a central theme, start pursuing individual interests.

AIDS TO MEDIA SELECTION FOR STUDENTS & TEACHER. U.S. Government Printing Office, 1971

This bibliography of lists describes selected book lists and periodicals which review books, audio-visual materials, and multi-ethnic instructional materials. An excellent source for leads to reliable reviews.

BIBLIOGRAPHY OF BOOKS FOR CHILDREN, 1971. Association for Childhood Education International.

Annotated. Excellent source for all areas of the elementary curriculum.

Carvajal, Joan & Murtha Munzer. CONSERVATION EDUCATION: A SELECTED BIBLIOGRAPHY Interstate, 1968. And

CONSERVATION EDUCATION: A SELECTED BIBLIOGRAPHY Supplement. Interstate, 1971.

This is a classic bibliography that should be available to all teachers. In addition to books on natural resources and current environmental problems, there are lists of basic collections suitable for various grade levels.

CONSERVATION & ENVIRONMENT FILMS 1971-72. U.S. Department of the Interior, Office of the Secretary.

A free annotated list of 90 16mm. sound, color films on conservation, environment and related natural resource subjects. Films of special ecological significance are starred.

CRITICAL INDEX OF FILMS ON MAN & HIS ENVIRONMENT. Interstate, 1972.

A most useful annotated bibliography for all grade levels.

Gott, M.E. & Wailes, J.R. HIGH INTEREST-LOW VOCABULARY SCIENCE BOOKS. School of Education, University of Colorado, 1970.

A briefly annotated bibliography directed to the remedial reading teacher and the classroom teacher seeking interesting materials written at a low vocabulary level. Reading level grades 1-4, interest levels K-3. Many valuable references for environmental education programs.

BIBLIOGRAPHIES Grades 4-6

A HANDBOOK OF LIBRARY AND AUDIO-VISUAL AIDS, Levels Three & Four, Levels Five & Six. Harcourt, 1970.

Annotated bibliographies compiled to go with the series Social Sciences: Concepts and Values (see Curriculum Materials Section).

Very useful whether or not one uses the texts.

Lussenhop, Martha CHILDREN'S ECOLOGY BOOKS. Cooperative Children's Book Center, 1971.

Fiction and non-fiction books to help children develop awareness of the interrelationships of organisms to each other and their environment. Annotated.

Maranz, Kenneth. BIBLIOGRAPHY OF CHILDREN'S ART LITERATURE. NEA

An annotated bibliography of children's literature designed to stimulate and enrich the visual imagination of the child. Leads here to many possibilities for heightening children's perception of their environment.

Moorachian, Rose editor. WHAT IS A CITY? Boston Public Library, 1969.

A gold mine of information! Annotated bibliography on books, pamphlets, periodicals, films, filmstrips, loops, recordings and realia. Contemporary themes and issues. Grade level indicated.

Planned Parenthood - World Population.

PAPERBACKS ON POPULATION, FAMILY PLANNING, & RELATED SUBJECTS.

A SELECTED BIBLIOGRAPHY - FAMILY PLANNING & RELATED SUBJECTS.

Briefly annotated bibliographies. These are among several put out by Planned Parenthood-World Population, one of the best sources of informative materials for population education.

Serina Press. GUIDE TO FILMS (16mm) ABOUT ECOLOGY, ADAPTATION & POLLUTION.

The guide provides brief descriptions of 16mm films available from 28 producers, distributors, and university audio-visual media centers. Obviously not complete, this booklet nonetheless is an excellent source.

SCHOLASTIC TEACHER October, 1971. Scholastic Teacher.

SURVIVAL GUIDE TO ENVIRONMENTAL EDUCATION - annotated multi-media bibliography.

BIBLIOGRAPHIES GRADE 4-

SOCIAL EDUCATION April, 1972 Vol. 3[illegible], No. 4. National Council for the Social Studies.

The bibliography of population education materials in this issue, compiled by the Population Reference Bureau, is the most comprehensive published to date.

SOURCEBOOK FOR POPULATION - ENVIRONMENT STUDIES Experimental edition. Population Curriculum Study, University of Delaware, 1972.

This sourcebook is designed to assist teachers and administrators in the selection of materials for school programs in population-environment studies. It is composed of three annotated sections: book bibliography, a list of periodicals, and a list of films. Excellent tool.

U.S. Department of the Interior CONSERVATION & ENVIRONMENTAL FILMS AND RELATED NATURAL RESOURCE FILM SUBJECTS.

Briefly annotated list of 16mm., color, sound films available from various branches of the Federal government.

BOOKS FOR STUDENTS
GRADES 4-6

Allen, Marjorie. PLANNING FOR PLAY. MIT Press, 1969.

Exciting alternatives in playground design offering the variety, adventure and fantasy opportunities of play in the countryside to city children looked after by teenage playleaders. After looking at the illustrations and discussing the ideas, children could follow up with models of their own.

Related books: Binzen, Bill MIGUEL'S MOUNTAIN
Clymer, Ellen BIG PILE OF DIRT
Selden, G. TUCKER'S COUNTRYSIDE

Amos, William H. THE LIFE OF THE SEASHORE. McGraw-Hill, 1966

This is one volume in the series OUR LIVING WORLD OF NATURE. Each book deals with an American biome, such as the forest, the seashore, or the desert, and leads the reader to an understanding of interrelationships within the biome. Written in an easy-to-follow, lively style. The illustrations, charts and diagrams aid greatly in making this a most useful reference set. In the appendix of each of these books you will find a glossary, a bibliography, guides to identification, and ideas for science activities. A teacher's guide is available.

Anno, Mitsumasa. TOPSY-TURVIES: PICTURES TO STRETCH THE IMAGINATION. Walker, 1970.

In pictures of deceptive simplicity, optical illusions form structures in which curious little men can go upstairs to get to a lower place, hang pictures on the ceiling, and walk on walls. How would the room look if you could walk on the ceiling? An amusing and imaginative way to stimulate visual perception. See Environmental Geometry cited under Curriculum Materials

Bauer, Helen. WATER: RICHES OR RUIN. Doubleday, 1959.

Broad introduction to wise utilization of natural resources. Emphasizes water as a basic and indispensable yet, exhaustible resource. Useful for lead-up to unit on pollution. Good photographs.

Related books: Buehr, Walter WATER: OUR VITAL NEED
Goetz, D. RIVERS
Helfman, Elizabeth RIVERS & WATERSHEDS IN AMERICA'S FUTURE
Helfman, E. WATER FOR THE WORLD
Shuttlesworth, Dorothy CLEAN AIR-SPARKLING WATER: THE FIGHT AGAINST POLLUTION

BOOKS FOR STUDENTS GRADES 4-6

Behn, Harry, Comp. & Tr. CRICKET SONGS: JAPANESE HAIKU Harcourt, 1964

This book, admirably illustrated with carefully chosen pictures by Japanese masters, should inspire children to put down their own impressions of nature in haiku form.

Bendick, Jeanne ADAPTION. Watts, 1971

Facts about animals and plants are correlated to show how each has adapted to particular environmental changes. The last section asks whether or not animals and plants can adapt to adverse environmental conditions, and if not, whether people will use the adaptations they have in an attempt to stop environmental pollution. Correlate with studies of other lands and vanishing species.

Billington, Elizabeth. UNDERSTANDING ECOLOGY Warne, 1968

A clear and simple study of ecology from how to get ready to be an "explorer" to explorations of the four parts of the ecosystem and how they affect each other. Excellent diagrams, good index. This book and similar ones cited should be used to introduce and/or supplement actual outdoor experiences, not to substitute for them.

Related books:

Hirsch, S.C.	THE LIVING COMMUNITY
Kane, Henry B.	TALE OF A MEADOW
Marchant, R.A.	WHERE ANIMALS LIVE
Pettit, Ted	WEB OF LIFE
Pringle, L. P.	DISCOVERING THE OUTDOORS
Raskin, Edith	PYRAMID OF LIVING THINGS
Selsam, M.	SEE THROUGH THE FOREST
Waters, J.F.	NEIGHBORHOOD PUDDLE

Blake, Peter GOD'S OWN JUNKYARD Holt, 1964

Contrasting examples of deterioration and beauty in cities, along roads, and in the sky are introduced by brief essays and illustrated with photographs. Can be used in conjunction with discussions on almost any environmental problem. Text suitable for junior high but illustrations useful in elementary school. Use in conjunction with PLANNING FOR CHANGE cited under Curriculum Materials.

Bronson, Wilfrid S. FREEDOM & PLENTY: OURS TO SAVE. Harcourt, 1953

In graphic text and humorous illustrations, the author gives a broad survey of conservation problems - how our natural resources have been wasted and how they can be saved. Cartoon-like illustrations might well inspire a class to draw their own cartoons to dramatize those issues which interest them the most.

BOOKS FOR STUDENTS Grade 4-6

Buck, Margaret Waring IN WOODS AND FIELDS. Abingdon, 1950.

Arranged by season and then by habitat, are descriptions of several hundred birds, bugs, small animals, flowers, trees and shrubs. Abundance of black and white illustrations. Useful for children who have not yet learned to use a field guide. Index with Latin names and reading list at end. There are two more books by Buck similar in format: IN PONDS AND STREAMS and IN YARDS AND GARDENS.

Burton, Virginia Lee THE LITTLE HOUSE. Houghton, 1942

The concept of city growth is presented at picture book level in this story. It shows how neighborhoods change and what happens as cities grow and devour more and more open space.

Students can be led into a discussion of the changes they have seen and those about which their parents and grandparents have told them--and then speculate on what's ahead.

Busch, Phyllis S. CITY LOTS: LIVING THINGS IN VACANT SPOTS. World, 1970.

Photographs by Arline Strong with an explanatory text acquaint children with the ecology of living things in unlikely city habitats. This is one volume in an excellent series entitled Discovering Nature.

Related books: Adrian, Mary SECRET NEIGHBORS: WILDLIFE IN A CITY LOT
Behnke, F.L. WHAT WE FIND WHEN WE LOOK UNDER ROCKS
Cohen, Daniel ANIMALS OF THE CITY
Lubell, W. BIRDS IN THE STREET: THE CITY PIGEON BOOK
Russell, Helen R. CITY CRITTERS
Simon, Seymour SCIENCE IN A VACANT LOT

Cohen, Daniel WATCHERS IN THE WILD. Little, Brown 1971.

Ethology, the study of the behaviour of animals in their natural habitat, is the subject of this well written and accurate book. It includes descriptions of the work of outstanding ethologists and in the final chapter, focuses on man's behaviour.

Related books: Lorenz, Conrad KING SOLOMON'S RING
Tinbergen, Niko ANIMAL BEHAVIOUR (Young Reader's Edition)

Dorian, Edith ANIMALS THAT MADE U.S. HISTORY McGraw-Hill, 1964.

The importance of wildlife in the development and growth of the United States is stressed from the time of the earliest settlers. Use in conjunction with Mason's WILDLIFE OF NORTH AMERICA and Stoutenberg ANIMALS AT BAY.

BOOKS FOR STUDENTS - GRADE 4-6

Dunning, Steven et al REFLECTIONS ON A GIFT OF WATERMELON PICKLE AND OTHER MODERN VERSE Scott Foresman, 1966.

A fresh collection of modern verse. Striking photographs are imaginatively matched to subjects to make an unusual volume. Language arts and environmental studies wonderfully combined.

Elkin, Benjamin LOUDEST NOISE IN THE WORLD. Hale, 1954.

A picture story of a small boy's birthday wish with a surprise ending. James Daugherty's vigorous illustrations are wonderfully "noisy". Could well be used before going on a "listening walk" or when introducing noise pollution to slightly older children. Fun to dramatize.

Related book: Navarro, J.G. OUR NOISY WORLD

Fisher, Aileen CRICKET IN A THICKET. Scribner, 1963.

Aileen Fisher's love of nature comes bursting out of this collection of her poems. By seeing ordinary things in new ways she jolts her reader humorously into doing the same.

Related books: Cole, William I WENT TO THE ANIMAL FAIR
Fisher, Aileen I WONDER HOW, I WONDER WHY
Weiss, Rene A PAPER ZOO

Gabel, Margaret SPARROWS DON'T DROP CANDY WRAPPERS. Dodd, 1971

In simple terms the author points out that each individual is responsible for various aspects of the pollution of our environment. The book contains practical suggestions for individual action, and suggestions for group discussions.

Related books: Leaf, Munro WHO CARES? I DO
Hyde, Margaret POLLUTION FIGHTERS

Hawkinson, John COLLECT, PRINT AND PAINT FROM NATURE. Whitman, 1963.

An inviting and inspirational book that offers the means for creative expression to further enrich an outdoor activity. Nature crafts provide a pleasurable and effective way of increasing sensory perception and heightening creative experiences.

Related books: Bale, R.O. CREATIVE NATURE CRAFTS
Foster, L. KEEPING THE PLANTS YOU PICK
Jaeger, E. NATURE CRAFTS
Saunders, J.R. GOLDEN BOOK OF NATURE CRAFTS

Helfman, Elizabeth SIGNS AND SYMBOLS AROUND THE WORLD. Lothrop, 1967.

How signs and symbols have helped man communicate from cave painting to modern times. Carry this a step further into the

study of visual pollution. Children can discuss, search out, and design attractive street graphics. Use these in a model of their neighborhood or city, better still have the best of them put into use in the school. Great possibilities here for increased visual awareness.

Related book: Sutton, James SIGNS IN ACTION

Hoban, Tana SHAPES AND THINGS Macmillan, 1970

Everyday objects shown as white solids against black introduce children to the beauty of form. See also the author's book LOOK AGAIN as another way to develop visual perception.

Related books: Borten, Helen DO YOU SEE WHAT I SEE?
Emberley, Ed WING ON A FLEA
Lovoos, Janice DESIGN IS A DANDELION

Kipling, Rudyard JUST SO STORIES. Doubleday, 1965

For those who, like the elephant's child full of "satiable curiosity", would like to know how the camel got his hump or how the leopard got his spots. Prose that begs to be read aloud. Set each child on the track of a discovery to satisfy his 'satiable curiosity' and then start his own collection of "Just So" stories--pictorial, verbal or written.

Kitchen, H.B. & C.L. Fenton PLANTS WE LIVE ON. Day, 1971.

Traces recent theories of the development of our major food plants. The last chapter, "Plants and Human Progress" is most timely. Valuable annotated bibliography.

Related books: Ames, Gerald FOOD AND LIFE
Helfman, E.S. THIS HUNGRY WORLD
Raskin, E. WORLD FOOD
Waters, J.F. SEA FARMERS

Leach, Maria HOW THE PEOPLE SANG THE MOUNTAINS UP. Viking, 1967

A collection of 30 creation myths from primitive cultures throughout the world that point up the differences and the similarities of their interpretations of natural phenomena. "How" and "why" tales of this sort help children to better understand the differing beliefs and men's consequent actions in the various cultures that they study.

Related books: Belting, N.M. THE STARS ARE SILVER REINDEER
Heady, T.B. WORLD OF MANABOZHO: TALES OF THE CHIPPEWA INDIANS
Parker, C.S. AUSTRALIAN LEGENDARY TALES
Schoek, G.F. CHEROKEE INDIAN TALES
Thompson, V.L HAWAIIAN MYTHS OF EARTH, SEA AND SKY

Lewis, Richard THE PARK. Simon & Schuster, 1963
Softly evocative photographs of nature in the city. Short captions help to catch the mood and season. Both adults and children need to become more aware of the natural beauty in the city. Use a book like this as a starting point, then go out and LOOK.
Related book: Munari, Bruno CIRCUS IN THE MIST

Lovoos, Janice DESIGN IS A DANDELION. Golden Gate, 1966.
To introduce children to the wonders of design all around them, "nature is the great designer". Uses examples found in nature to explain such things as form, texture, balance, rhythm, and contrast.
Related books: Downer, Marion DISCOVERING DESIGN
Harlow, W.M. PATTERNS OF LIFE
Hart, Tony THE YOUNG DESIGNER

Mason, George Frederick THE WILDLIFE OF NORTH AMERICA. Hastings, 1966.
Well illustrated, very readable account which gives a brief history of North American wildlife, reveals some of the situations that caused animals to become extinct, and discusses the effects of diminishing natural areas, toxic pesticides and water pollution on animal and plant life. The author emphasizes importance of conservation and describes past and current conservation methods. Includes chart of geological areas, maps of U.S. wildlife refuge systems and Canadian National Parks, and a bibliography.
Related books: Euller, John WHALING WORLD
Laycock, George AMERICA'S ENDANGERED WILDLIFE
Laycock, George THE PELICANS
McClung, R. LOST WILD AMERICA
McCoy, J.J. NATURE SLEUTHS
McCoy, J.J. SHADOWS OVER THE LAND
Pinney, Roy VANISHING WILDLIFE
Scheffer, V.B. LITTLE CALF (adaptation of Year of the Whale)
Stoutenberg, A. ANIMALS AT BAY
Van Dersal, W.R. WILDLIFE FOR AMERICA
Wood, F. ANIMALS IN DANGER

Morgan, Edmund S. SO WHAT ABOUT HISTORY Atheneum, 1969.
We can learn a lot about the past by examining the "junk" people leave behind. What we have kept and why we have discarded certain other things. Shows how people change their ideas, their way of life, and influences which help to bring about change. Illustrated with good photographs of art objects, cities, and architecture old and new.

O'Neill, Mary HAILSTONES & HALIBUT BONES: ADVENTURES IN COLOR. Doubleday, 1961.

Clever imagery and word play in verses heightened by Leonard Weisgard's illustrations. Lends itself to art and language arts as well as natural history.

Pringle, Laurence THE ONLY EARTH WE HAVE. Macmillan, 1969

A concise, honest statement of man's abuse of his planet (reductions of wildlands, pollution of the air, and use of insecticides) documented with telling photographs. Sound introductory material.

Pringle, Laurence ONE EARTH, MANY PEOPLE: THE CHALLENGE OF HUMAN POPULATION GROWTH. Macmillan, 1971.

The author makes the problem very plain as he analyzes conflicting opinions and takes a sobering look into the future.

Rhodes, Dorothy HOW TO READ A CITY MAP. Elk Grove, 1967.

Starting with the near and familiar, this step-by-step development of map making and reading offers understanding to young children. Photographs juxtaposed with maps of the same territory make meanings clear even to the non-reader. Useful with such curriculum units as DOING GERMANTOWN and IF YOU LIVE IN THE CITY cited in this bibliography.

Related books: Epstein, Sam & Beryl FIRST BOOK OF MAPS & GLOBES
Estep, Helen GOOD TIMES WITH MAPS
Marsh, Susan ALL ABOUT MAPS AND MAPMAKING

Rudofsky, Bernard ARCHITECTURE WITHOUT ARCHITECTS. Doubleday, 1970.

A glorious book, with many masterly photographs, showing how various primitive cultures the world over have designed and built homes and other structures which conform to the land, their ideas about nature, and their religions.

This ti's in well with the study of communities in elementary social studies.

Related books: Burns, Wm. WORLD FULL OF HOMES
Downer, Marion ROOFS OVER AMERICA
Robbin, Irving CAVES TO SKYSCRAPERS

SCIENCE YEAR: THE WORLD BOOK SCIENCE ANNUAL Field Enterprises, 1971.

This 1971 issue concentrates on environmental problems. There is a special three-part feature entitled The Fate of Our Lakes which contains an excellent series of overlays demonstrating the process of eutrophication.

Many of the World Book articles are available as reprints which make useful teaching aids.

Webster, David SNOW STUMPERS. Natural History Press, 1968.

The first section of this book is a collection of black and white photographs, grouped by themes such as Snow Along the Road, Tracks in the Snow, Solid Ice. A stimulating question accompanies each picture. Children should be able to find many other "Snow Stumpers" on their own as they study this aspect of their environment. Answers appear at the end of each theme. The second section describes science activities involving ice and snow.

Youngpeter, John M. WINTER SCIENCE ACTIVITIES: EXPERIMENTS AND PROJECTS. Holiday, 1966

Seventy projects concerning all facets of winter, from both the physical and the biological aspects. Written for children but provides many useful ideas for teachers. Could well be used in conjunction with Webster's SNOW STUMPERS.

Related books: Busch, Phyllis A WALK IN THE SNOW
Russell, H.R. WINTER SEARCH PARTY: A GUIDE TO INSECTS AND OTHER INVERTEBRATES

Hilton, Suzanne HOW DO THEY GET RID OF IT? Westminster, 1970.

An informative review of the many methods of disposing of things that are no longer useful and of the wastes of modern industry and human living. Some of the methods described and pictured are in current use, some are new developments that have not yet been implemented. Detailed bibliography. Many photographs. See TEACHING SCIENCE WITH GARBAGE cited under Curriculum Materials.

BOOKS FOR TEACHERS
Activity Guides
Grade 4-6

Comstock, Anna B. HANDBOOK OF NATURE STUDY. Cornell University Press, 1939.

A classic among general nature activity books, written by an elementary school teacher for teachers. Nature activities, for indoors and outdoors, described in detail. Drawback in that interrelationships are not emphasized but does contain materials that cannot be found elsewhere - e.g. domestic animals.

Hammerman, Donald R. & Wm. H. Hammerman TEACHING IN THE OUTDOORS. Burgess, 1964.

Defines outdoor education and its relation to the school curriculum. Gives specific activities and techniques for teaching in the outdoors that relate to language arts, social studies, math, and the like, at all grade levels.

Hillcourt, William NEW FIELD BOOK OF NATURE ACTIVITES AND HOBBIES. Putnam, 1970.

Covers all aspects of nature study with countless detailed suggested activities and projects. A "Project Index" lists 400 additional projects particularly suited for group work, graded according to degree of knowledge, effort, and equipment required.

Hug, John W. & Phyllis J. Wilson CURRICULUM ENRICHMENT OUTDOORS. N. Y. Harper & Row, 1965.

More than 350 suggestions for outdoor activities to enrich every area of the curriculum. A listing of activities by grade level (1-9) is a useful addition. Currently out-of-print but certainly worth pursuing in libraries.

Linderman, Earl W. DEVELOPING ARTISTIC & PERCEPTUAL AWARENESS. Wm. C. Brown, 1964.

A concise, well-illustrated book, with emphasis on the preschool and elementary levels. It contains good coverage of the whole area of motivation and offers specific examples for the beginner.

Morse, Jim & Nancy Matthews THE SIERRA CLUB SURVIVAL SONGBOOK. Sierra Club, 1971.

A wide sampling of the best environmental songs in America today. The lyrics, and music for guitar are included. Certainly a must for all school libraries. Current musical selections can be used to introduce many aspects of environmental problems.

Musselman, Virginia W. LEARNING ABOUT NATURE THROUGH GAMES. Stackpole, 1967.

Playing games is one more excellent means of developing environmental awareness. This book offers many suggestions that will enliven all aspects of the curriculum. Bring it to the attention of your gym teacher too.

Myers, R.E. & E.P. Torrance. CAN YOU IMAGINE? Ginn, 1965.

A wonderfully rich source of imaginative ideas to encourage children to think creatively and critically. This is one in the series of Ideabooks all of which are worthwhile.

Related book: Koch, Kenneth WISHES, LIES & DREAMS: TEACHING CHILDREN TO WRITE POETRY. Random, 1970.

Peck, Ruth L. ART LESSONS ON A SHOESTRING. Parker, 1963.

New Ideas for practical art lessons in the elementary school. Using these sixty easy-to-follow, imaginative lesson plans you can recycle all manner of materials from home and yard.

Subarsky, Zachariah et al. LIVING THINGS IN FIELD & CLASSROOM. Minnesota School Math & Science Center, University of Minnesota, 1969.

A handbook for teachers of elementary grades to help them give children firsthand experiences with living things, and to coordinate outdoor teaching with the indoor curriculum.

Swan, Malcolm D. ed. TIPS AND TRICKS IN OUTDOOR EDUCATION: APPROACHES TO PROVIDING CHILDREN WITH EDUCATIONAL EXPERIENCES IN THE OUT-OF-DOORS. Interstate, 1970.

This paperback manual prepared by members of the Department of Outdoor Teacher Education, Laredo Taft Field Campus, Northern Illinois University offers many helpful suggestions involving all areas of the curriculum.

Van Der Smissen, Betty & O.H. Goering. NATURE-ORIENTED ACTIVITIES 2nd ed. Iowa State University Press, 1963.

A wealth of suggestions using the natural environment that can be correlated with the school curriculum.

Van Matre, Steve. ACCLIMATIZATION. Towering Pines, Eagle River, Wisconsin, 1970.

A sensory approach to ecological envolvement that can be used at any grade level. Suggestions for activities, and techniques for control, in an outdoor situation.

BOOKS FOR TEACHERS - ACTIVITY GUIDES GRADES 4-6

Wensberg, Katherine EXPERIENCES WITH LIVING THINGS: AN INTRODUCTION TO ECOLOGY FOR FIVE TO EIGHT YEAR OLDS. Beacon Press, 1966.

An "experience first" approach to ecology with a rich variety of suggestions for explorations and activities stressing the interrelationships in nature. A story concludes each topic. Excellent bibliographic references are listed for each experience.

BOOKS FOR TEACHERS
BACKGROUND READING
GRADE 4-6

Barr, Robert D. ed VALUES AND YOUTH.(Crisis Series No. 2) National Council for the Social Studies, 1971.

"Kaleidoscopic view of the moods, mods, and meanings of youth activities in contemporary America." Specific teaching strategies that will help every teacher are outlined.

Related books: Metcalf, L.E. VALUES EDUCATION
Simon, S.B. CLARIFYING VALUES

Buchsbaum, Ralph & Mildred BASIC ECOLOGY. Boxwood, 1957.

As the title indicates, a basic introduction to ecology for beginners in the field. Useful bibliography that includes journals and textbooks as well as titles under special aspects of ecology.

Related books: Darling Lois PLACE IN THE SUN
Kormondy, E.J. PRINCIPLES OF ECOLOGY

Farb, Peter and the Editors of Life ECOLOGY. Time-Life, 1963.

Excellent introduction to ecology covering all aspects of plant-animal-man relationships. Many full-page illustrations throughout make this useful for browsing for all age groups. The other volumes in this Life Nature Library are a valuable addition to any classroom.

OUR LIVING WORLD OF NATURE, McGraw-Hill, is another excellent series.

Hammerman, Donald R. & Wm. M. Hammerman OUTDOOR EDUCATION: A BOOK OF READINGS. Burgess, 1963.

The readings are relatively short (6-page maximum), numerous, and cover philosophy, history, mechanics, programs, teacher education, evaluation, and research. Useful source of ideas and quotations when "selling" the outdoor classroom to administrators and school committees.

Harris, Melville ENVIRONMENTAL STUDIES. Citation, 1971.

A brief, readable account of the increasing emphasis in Britain on the use of direct experiences in the environment outside the school. Case studies are cited.

This is one volume in an excellent series entitled Informal Schools in Britain Today.

Leopold, Aldo SAND COUNTY ALMANAC: WITH OTHER ESSAYS ON CONSERVATION FROM ROUND RIVER. Oxford University Press, 1966.

Undoubtedly one of the most quoted authors in the field on conservation. A collection of essays that points up the concept

of a land ethic and the need for man to recognize his place in relation to the entire community of things organic and inorganic.

Storer, John WEB OF LIFE. New American Library, 1956.
Explains in simple language and with great clarity the complex term "Balance of Nature". To better understand the place and effect of man on the ecosystem read Storer's MAN IN THE WEB OF LIFE.
Related books: Lauwery, J.A. MAN'S IMPACT ON NATURE. Natural History, 1970.
Roth, C.E. MOST DANGEROUS ANIMAL IN THE WORLD Addison-Wesley, 1971.

Terry, Mark. TEACHING FOR SURVIVAL. Ballantine, 1971.
"Those who are in a position to teach, and to lead others to learn and act, can hardly find a better guide to environmental action than this richly detailed discussion..."

Van Sickle, Dirk. THE ECOLOGICAL CITIZEN. Harper, 1971.
Our environment is being ravaged to maintain a high standard of consumption, not a high standard of living. Changing our life style is crucial if we are to survive. This book tells how, with practical advice for groups and individuals.
Related books: DeBell, Garrett ENVIRONMENTAL HANDBOOK
Disch, Robert ECOLOGICAL CONSCIENCE: VALUES FOR SURVIVAL

CURRICULUM MATERIALS
GRADE 4 - 6

ADVENTURE IN ENVIRONMENT NEED National Environmental Education Development. Silver Burdett

The NEED program developed as an attempt to get children involved and aware of the impact of their own decisions and actions on the overall environment.

Through the NEED strands, a child begins to see that the various fragments (like math and music and history and biology) are tied into an understandable whole. These strands are 1) variety and similarity, 2) patterns, 3) interaction and interdependence, 4) continuity and change, 5) adaptation and evolution. This is one of the most imaginative programs available. Try it!

BEYOND THE CLASSROOM (trial edition) Mass. Audubon Society, 1972.

A guide to the use of the urban environment as an instructional medium. Package includes a general guide to urban environmental education; 4 packets of activity cards - one for each of the grade levels K-3, 4-6, 7-9, 10-12; and a guide to the natural history of cities.

BLUEPRINTS FOR ENVIRONMENTAL PROBLEM-SOLVING K-12 Maine Environmental Education Project

Units designed by teachers, representing a variety of disciplines, to develop the study of five major environmental problem areas common to communities across the country. The issues studied were: Development of the School Site, Providing for Recreation, Water Quality and Sewage Disposal, and Shade Tree Care and Maintenance.

Also available "The Community Environmental Inventory" and "The School Site in Environmental Education."

CONCEPTUAL SCHEME FOR POPULATION-ENVIRONMENT STUDIES (Experimental ed.) Population Curriculum Study, University of Delaware, 1972.

A K-12 multi-disciplinary program with a problem-solving approach. This conceptual scheme is a framework in which existing courses of study can continue to be used and in which new materials can be adopted. (See "Source book for Population-Environment Studies" cited in Bibliography section).

DOING GERMANTOWN: A GUIDE TO STUDYING URBAN NEIGHBORHOODS FOR ELEMENTARY SCHOOL CHILDREN. Instructional Services, School District of Philadelphia, 1970.

This guide offers plans for an enrichment program in urban exploration involving junior and senior high school students and second graders. The procedural aspects are clearly delineated. The suggested activities could be adapted to any elementary grade level.

CURRICULUM MATERIALS GRADES 4-6

EDUCATION FOR SURVIVAL North Jersey Conservation Foundation, 1970

A social studies and science curriculum for Grades 4 & 5, developed by teachers, that offers a wide variety of classroom experiments, suggestions for field trips, and supplemental activities from which the teacher might choose. Environmental concepts, as they related to the experiences of the children, are well-thought-out and can be successfully incorporated in existing courses of study.

ENVIRONMENTAL EDUCATION: SOCIAL STUDIES SOURCES AND APPROACHES Henderson, Martha T. ERIC Clearinghouse for Education and Social Science, 1970.

A sampling of programs which social studies teachers will find provocative. Detailed comments on projects for elementary and secondary levels followed by a bibliography.

ENVIRONMENTAL GEOMETRY Nuffield Mathematics Project. Wiley, 1968.

Environmental Geometry is designed to make teachers and their students more aware of the environment as a source of mathematical activities. This guide contains a wealth of suggestions for investigations.

A booklet Antidotes to Rote from the publisher describes several other books in this series that are equally valuable.

EXAMINING YOUR ENVIRONMENT Mine Publications, 1972.

A colorfully illustrated, paperback series of interdisciplinary environmental studies. The investigations suggested in the series will serve as starting points for students, who will then wish to pursue individual interests in more depth. Some of the titles - Miniclimates, Pollution, Ecology, Mapping Small Places, Your Senses.

GEOGRAPHY IN PRIMARY SCHOOLS The Geographical Association, 1970.

A British paperback handbook for elementary school teachers outlining techniques and suggesting activities with interdisciplinary, environmental emphasis.

GUIDELINES FOR ENVIRONMENTAL SENSITIVITY Eleanor Bennett et al Pennsylvania Department of Education, 1969.

Attractive, well-thought-out booklet. Useful in explaining objectives of environmental education to parents of grades K-6. Also from same source School Site Development for Outdoor Education.

IF YOU LIVE IN THE CITY, WHERE DO YOU LIVE? National Instructional Television, 1970.

A social studies unit planned to correlate with the study of communities in grades 4 and 5.

The five basic concepts are 1) the exterior environment of the city, 2) internal urban space and the use made of it, 3) the changes that take place over a period of time in an urban environment, 4) the special needs city people have in terms of space and facilities, and 5) the resolution of conflicting needs in the best interests of a neighborhood.

The twenty-five activity cards can be used independently of the films and offer a wide variety of suggestions.

IMPROVE YOUR ENVIRONMENT: FIGHT POLLUTION WITH PICTURES(#AC-26) Eastman Kodak Co.

Suggestions for a variety of photographic environmental action projects. Excellent colored illustrations.

INTERNATIONAL UNIT FOR GRADES 4-6 Information Center on Children's Cultures, U.S. Committee for UNICEF.

This unit, introduced after children have had some earlier studies of other countries, provides an interesting and unusual introduction to the economic and social interdependence of peoples. Three projects are suggested. Children will undoubtedly come up with others. Contact this Center for other units and excellent bibliographies.

INVITING INVOLVEMENT WITH HISTORY Conservation & Environmental Science Center, New Jersey

History lessons come alive as students are involved in direct personal experiences. All manner of possibilities here for interdisciplinary studies. This Center has produced several other excellent units.

THE LAND USE GAME Education Ventures, Inc., 1971.

Land Use confronts students with an actual problem of trying to provide for human needs while preserving environmental values to the greatest extent possible. Student planning groups have an opportunity to test their own value judgments in a "contest" with environmental facts. A separate teaching guide suggests game variations and discussion possibilities.

An outstanding simulation game at a very reasonable price.

MAINE ENVIRONMENTAL EDUCATION PROJECT Dean Bennett, Coordinator.

A theme environment has been chosen for each grade level. "Within the theme environment, students will be encouraged to interact with the environment or utilize resources in interesting ways and, in so doing, they will become aware of, or guided in, the identification of past, present, or pending environmental problems."

MAN: A COURSE OF STUDY Education Development Center

This fifth grade course seeks to answer the question: "What is human about human beings?" The course, as developed to date, is available for purchase under "controlled conditions" which means teachers must attend a National Science Foundation Workshop and schools must purchase the necessary materials. The course has a conceptual structure of knowledge. Through the study of salmon, herring gulls, baboons, and finally, the Netsilik Eskimos, the students perceive the continuity from animal to man on the themes of "life cycle", "learning", "parenthood", and "social organizations". A distinctive part of the course is the variety of instructional materials, both printed and audio-visual. The films and slides are superb.

MAN AND HIS ENVIRONMENT: AN INTRODUCTION TO USING ENVIRONMENTAL STUDY AREAS Association of Classroom Teachers NEA, 1970

A new interdisclipinary approach to environmental education at all school levels. It provides practical suggestions for classroom teachers for use of the environment to help students understand relationships between man and his environment. A unique aspect of this approach is the utilization of five "strands" which can be applied to any subject area. A filmstrip, also entitled Man and His Environment, will orient administrators, teachers, and the public to this strand approach.

MAN'S HABITAT--THE CITY Environmental Science Center

The activities in this unit will enable the urban child to actively investigate, discover, and relate to his habitat--the city.

Another unit from ESC - Vacant Lot Studies - gives the city child a chance to understand ecology without ignoring the influence of man, as is done in some "nature study" units. Write for their list of publications. Some of these units are also available from the National Wildlife Federation. Ask for Environmental Discovery Units.

CURRICULUM MATERIALS GRADES 4-6

MINIATURE ENVIRONMENTS: AN ENVIRONMENTAL EDUCATION GUIDEBOOK. U. S. Department of Interior, Bureau of Outdoor Recreation

Describes ways to build balanced ecosystems within the classroom using low-cost materials.

NUFFIELD JUNIOR SCIENCE PROJECT Wm. Collins Sons, 1967.

The Nuffield Junior Science Project is a large scale British experiment in education, in which young children were introduced to the excitement of practical investigation and scientific observation.

Teacher's Guide 1 sets out the general educational thinking of the Project. Subsequent chapters interpret that thinking in terms of practical classroom situations.

Teacher's Guide 2 presents 38 live case histories, each a faithful record of a project undertaken in school. A flow chart accompanies each project showing graphically its starting point and the varied work following from it. These charts vividly point up the interdisciplinary emphasis of the Project.

There are three background booklets, and two other books also available - Apparatus and Animals and Plants. All offer many excellent ideas.

OPERATION NEW YORK - USING THE NATURAL ENVIRONMENT OF THE CITY AS A CURRICULUM RESOURCE Board of Education, City of New York, 1960.

Valuable suggestions for teachers in any urban area. "The interrelationships of living things, including man, with their physical surroundings are understood as boys and girls explore the many "little environments" which are found within the city".

OUR CITY ENVIRONMENT: PAVED AREAS Hamilton Board of Education

Since paved areas make up so much of the city environment, it is important that they be included in ecological studies. This unit has an interdisclipinary emphasis and offers many suggestions. It is one in an urban series.

The Hamilton school system has developed many other excellent units. Write for a price list.

A PLACE TO LIVE National Audubon Society, 1970.

A new study program in Urban Ecology for Grades 4,5, and 6. The student's text is in workbook format covering basic ecological concepts as found in any urban environment. "Try This" activities call for both classroom and outdoor lessons. The Teacher's Manual includes, in addition to the "Try This" activities, many suggestions for supplementary experiences. Many of these indicate ways of

correlating "A Place to Live" with language arts, social studies, mathematics and art.

PLANNING FOR CHANGE - A BOOK ABOUT NEW YORK CITY AND HOW TO CHANGE IT Center for Urban Education, 1969.

Written as a workbook for upper elementary grades, but the vocabulary and writing assignments appear to be junior high level. The concepts, however, could easily be understood by grade schoolers. Calls for a detailed study of the child's neighborhood, in the course of which the student will become aware not only of the negative aspects, but also of the possibilities for positive improvements to which he can contribute.

In following such a program, the teacher also would gain a greater understanding of her inner city students. See Doing Germantown and Operation New York cited previously.

POND WATER Elementary Science Study (ESS) Education Development Center.

This is a unit, developed to extend over a period of at least five or six weeks, introducing children to the variety of pond life. There are two sets of cards: (1) Method cards carry helpful information about keeping pond water animals alive, making good slides, etc.; (2) Animal and Plant cards which identify and describe individual animals and plants that children may find in their pond water. This is an unstructured unit with emphasis on observation and inquiry. The teacher's guide contains background information and suggestions for activities. ESS has produced many other units. Among them are Animals in the Classroom, Tracks, Structures.

POPULATION REFERENCE BUREAU

Population Bulletin, World Population Data Sheets, Population Profiles.

P.R.B. is the best source of information of facts about size, composition and dynamics of the world's population and analyses of the impact of these demographic facts on the quality of human life throughout the world. Membership is only $5.00 for teachers and all members receive all regular P.R.B. publications.

PROGRAMS IN ENVIRONMENTAL EDUCATION National Science Teachers' Association (NSTA)

Describes over 50 programs in schools around the country. Programs include all formats and grade levels. Only programs now underway and able to distribute materials and/or information have been included.

CURRICULUM MATERIALS GRADES 4-6

RESOURCE UNIT ON POPULATION PRESSURE Baltimore City Public Schools, Bureau of Publications, Baltimore, Md.

A Teacher's Guide for the teachers of the Baltimore Public Schools at all levels. The pamphlet attempts to alert teachers to population pressure at local to international levels. Background information is presented, suggested approaches given, and a bibliography of instructional meterials is included.

SALT MARSH, SOUND, AND SEA BEACH Regional Marine Science Project, 1970.

One of several units developed in this Title III project and available at cost. All the materials take an ecological approach to nature, stressing the ties between culture, economy and resource use. Field work is an integral part of the curriculum.

SCHOLASTIC EARTH CORPS ENVIRONMENTAL/ECOLOGY STUDY PROGRAM Scholastic, 1971.

Multi-media kits directed to fostering environmental awareness. If used in conjunection with some of the other curricula listed here that emphasize discovery and inquiry, these materials would be useful.

SCIENCE CURRICULUM IMPROVEMENT STUDY (SCIS) Robert Karplus, Dir. Rand McNally

This is an ungraded, sequential, physical and life science program for the elementary school. The teaching strategy is for children to explore selected science materials. They are encouraged to investigate, to discuss what they observe, and to ask questions. The SCIS teacher has two functions: to be an observer and to be a guide. Materials are of four types: (1) Teacher's Guide, (2) Pupil Manuals, (3) Laboratory Materials, (4) Films. Titles of some of the units now available in commercial editions from Rand McNally: Life Cycles, Organisms, Interaction and Systems, Populations, Environments, Ecosystems.

SCIENCE IN CITY & SUBURB: EXPERIMENTS IN YOUR NEIGHBORHOOD American Education Publications, 1969.

A newsprint publication filled with many good science activities that use the immediate environments of streets, buildings, etc. as a source of study. Can be used in conjunction with Doing Germantown cited earlier.

SMEAC/SCIENCE, MATHEMATICS & ENVIRONMENTAL EDUCATION INFORMATION ANALYSIS CENTER. ERIC: How To Use It for Environmental Education

Request this report from SMEAC to obtain complete information on the retrieval of reports, curriculum guides, journal articles, etc. on environmental education. A complete listing of ERIC Clearinghouses is given. The newsletters from these Clearinghouses are good leads to new materials and for the school librarian and curriculum planner.

SOCIAL EDUCATION - January 1971, Vol. 35, No. 1 National Council for the Social Studies.

This issue of the NCSS journal is entirely devoted to The Environmental Crisis incorporating an interdisciplinary approach. There is also a lengthy section on sources and resources and instructional media.

SOCIAL EDUCATION April 1972, Vol. 36, No. 4 National Council for the Social Studies.

This issue is devoted to population education and contains the widest multi-media coverage yet given to this topic. This journal should certainly be available to teachers.

THE SOCIAL SCIENCES: CONCEPTS AND VALUES. Harcourt, 1970.

This K-6 series is one of the best of the very few social studies texts emphasizing basic ecological concepts. "Concepts and values - the concepts of man as a social being, and the values that make him human - are the substance of this program. The sustaining theme is responsibility - responsibility for oneself, for mankind and for the environment."

SOME GUIDES TO DISCOVERY ABOUT ELM TREES, OWLS, COCKROACHES, EARTHWORMS, CEMENT AND CONCRETE Phyllis Busch, 1969. ERIC Report #ED035540.

The introduction emphasizes the need for environmental and conservation education, and advocates an inquiry approach. Outdoor resources available to every school are listed. Detailed suggestions are made for investigations, references are cited, and student activities are suggested.

TEACHING SCIENCE WITH GARBAGE A. & V. Schatz. Rodale, 1971.

An interdisciplinary approach that includes mathematics, science and social studies. The materials needed are simple, inexpensive, readily available, and familiar. The activities offer a positive approach to the study of pollution. Write for information on new units soon to be published.

CURRICULUM MATERIALS GRADES 4-6

URBAN DISCOVERY MANUAL Phyllis Busch, 1969 ERIC Report #ED033344.
Presents seventy-five suggestions for investigating, in grades K-6, such common urban resources as trees, seeds, polluted air, rocks, and insects.

FILMSTRIPS
GRADE 4-6

AMERICA'S URBAN CRISIS - Group I. SVE, Sound, Color.
Series Titles: Roots of Our Urban Problems, Air Pollution Menace, Water Pollution - A Complex Problem, Solid Waste - A New Pollutant, Transportation Crisis, Housing Crisis.
On site photography in six major U.S. cities provides a survey of environmental problems. The filmstrips on solid waste, transportation, and housing are useful in conjunction with Doing Germantown cited under Curriculum Materials.

A CITY IS MANY THINGS Churchill. Silent, Color.
Series Titles: A City is Buildings...People At Work...Services...Transportation
A visually intriguing series that stimulates children to follow up on the ideas presented. Ties in well with If You Live In The City cited under Curriculum Materials.

COMMUNITIES OF LIVING THINGS McGraw-Hill. Silent, Color.
Series Titles: Animals, Plants and their Environment, Animal & Plant Relationships, Animals and Plants of the Forest, ...the Field...the Pond...the City.
Explains in simple terms the interdependence of animals and plants to each other and to their environment, and portrays the interrelated system in which whole organisms and their environment function.

CONSERVATION FOR TODAY'S AMERICA. S.V.E. Sound, Color.
Series Titles: Soil Conservation Today, Forest Conservation Today, Water Conservation Today, Wildlife Conservation Today, Mineral Conservation Today, Urban Conservation Today, Land Conservation Today.
This series deals with the need for the conservation of our natural resources and analyzes the problems arising from that need. Some solutions are given which should generate group discussion and further study. Good photography. Can be used at all levels if adapted to group. Each film might be used as a course introduction.

CONSERVATION IN THE CITY. Encyclopedia Britannica. Silent, Color.
Part I - Underfoot; Part II - Eyelevel; Part III - Overhead.
A new and interesting approach to looking at the city environment. Each filmstrip presents a number of different areas for study and discussion; nature study, ecology, conservation and problems (pollution) are some of these. Color is very good as are the questions and suggestions for activities. Some of the vocabulary may need explaining.

FILMSTRIPS Grade 4-6

DISCOVERING LIFE AROUND US. Encyclopedia Britannica. Silent, Color.

Series Titles: A Visit to the Farm, A Visit to the Garden, A Visit to the Pond, A Visit to the Seashore, A Visit to the Woods.

Shows relationship between living things and introduces some ecological concepts. Size relationships in film are not true and some vocabulary will need explaining. Can be used to introduce discussion of familiar areas or as a prelude to a field trip.

ECOLOGY AND MAN Set I, McGraw-Hill. Silent, Color.

Series Titles: Introduction to Ecology, Changes in Ecosystems, Energy Relationships, Habitats and Niches, Populations and Biomes, Adaptations to Environment.

This series introduces basic ecological principles and vocabulary, and each film develops in sequence a major concept. Excellent color, good questions for discussion. They may be adapted for use according to ability. Supplementary information and explanation by user is necessary.

ECOLOGY AND MAN Set II, McGraw-Hill. Silent, Color.

Series Titles: The Forest Biome - Part I and Part II, The Grassland Biome, The Desert Biome, Freshwater Ecology, Seacoast Ecology.

This series shows how the basic ecological principles operate in the major biomes and habitats. Prior knowledge of concepts and terminology is necessary for use of these filmstrips. The color is excellent, good discussion material adaptable according to ability.

ECOLOGY AND MAN. Set III McGraw-Hill. Silent, Color.

Series Titles: Man-managed Ecosystems, The Management of Water, The Management of Soil, The Ecology of Farming, Competitive Land Uses, Human Ecology.

Presented in this series are man's successes and failures in managing nature for his own benefit, and problems presented by the failures. Users should be familiar with basic ecological principles and terminology. Manual has good discussion questions and suggestions for activities and further reading.

EXPLORING THE WORLD OF NATURE. S.V.E. Silent, Color

Series Titles - Group I: Let's Explore a Field...A Lawn... A Pond...A Stream...A Woodland.

Series Titles - Group II: Let's Explore the City, Part I & Part II, Let's Explore the Dunes...the Desert...the Shore...a Salt Marsh.

Introducing a variety of plants and animals in their natural

setting and their relationship to their environment. Vocabulary level consistent, good questions and ideas for further exploration. Useful prior to field trips, as an introduction to study of plants and animals, or discussions.

MODERN BIOLOGY: ENVIRONMENT AND SURVIVAL S.V.E. Silent, color.

Series Titles: Group 2 - Life in a Sand Dune Succession, Life in a Bog, Life in an Alpine Environment, Life in a Fallen Log Micro-community.

Explains animal-environmental interdependence, plant/animal communities, importance of biotic and abiotic conditions. This group is of particular value because of the unusual communities which it includes.

NATURE'S HALF ACRE Encyclopedia Britannica. True-Life Adv. Series. Silent, color.

Some plants and animals that may be found in a small area. Excellent photography shows beauty of nature. Can be used as a part of nature study unit or as introduction to field trip.

PLANT AND ANIMAL RELATIONSHIPS Encyclopedia Britannica. Silent, color.

Series Titles: The Grassland: Story of a Major Community, The Swamp: Some Relations between Organisms, The Desert: An Example of Adaptations, The Seashore: A Continually Changing Environment, The Pond: How Living Things Change Their Environment, The Forest: A Stable Community.

These filmstrips present two basic ideas; that all organisms are part of interdependent living systems called communities, and that they are especially adapted to their particular environment. The charts and diagrams are very useable, and the suggestions for further study and discussion very good.

URBAN ECOLOGY: SIX MICROSYSTEMS Eyegate. Silent, color.

Series Titles: Paved School Yard, Vacant Lot, Pocket Park, Park Pond, Grass School Yard, Construction Site.

Designed to introduce the concept that ecology can be studied in the city as well as the country. Correlates well with urban activities cited under Curriculum Materials.

YOUNG SCIENTISTS INVESTIGATE POLLUTION. S.V.E. Sound, color.

Series Titles: Smog and Plant Growth, Air Pollution and Lung Tissue, Measuring Water Pollution, Fresh Water From the Sea.

This series presents an unusual approach to the study of atmospheric and water pollution. Students tell of their science fair projects. Offers opportunities for discussion of content and procedures.

GRAPHICS
GRADES 4 - 6

ANIMAL & PLANT COMMUNITIES SERIES STUDY PRINTS McGraw-Hill.

Series Titles: Where Plants Live, Freshwater Community, Forest Community, Desert Community, Seashore Community.

Durable, full color photographs. The community approach is well thought out. The textual material on the back of the prints is in large type and the vocabulary is geared to the student. Thoughtful questions in this text add to the value of these study prints.

A CITY IS... (Urban Education Study Series) Day, 1965.

Brought together in a large spiral album, these photographs express the meaning of cities in terms of people, events, geographical influences and change. Extremely valuable as a comprehensive Teacher's Guide.

CONSERVATION POSTER SET J. Weston Walch, Publisher.

Each poster carries a large illustration and a thought-provoking commentary. Posters in each set are coordinated to give a survey of the area under study. 18 posters per set, 11"x14". The sets include such titles as Ecology of the City, Conservation of Wildlife, Air Pollution.

ECOLOGY WHYS Carnegie Museum.

Two sets of six charts each, on heavy cardboard 20" x 24". Charts cover such subjects as Animal Homes in Trees, Soil - How It Is Made, What Good Are Trees, Succession on a Fallen Log. Accompanying teacher's manuals contain a lesson plan, follow-up activities, a glossary and a reading liest.

ENVIRONMENTAL EDUCATION CHARTS. Gull Lake Environmental Education Project.

Illustrations and text describing food, habitat, distribution, reproductive and annual cycles, distinguishing characteristics and identification of several different animals. Also a pond life chart depicting food chains and energy cycle.

HISTORIC STAMP POSTERS U.S. Postal Service, Washington, D.C.

A full color, 30"x40", poster of nine of the conservation stamp series could become the focus for a stamp collection display on environmental issues.

HOW MAN POLLUTES HIS WORLD National Geographic, Dec. 1970.

Colorful painting 42½"x 29¼" (order from National Geographic Dept. 61) depicts many sources of man-made pollution.

GRAPHICS Grades 4-6

INSTRUCTOR ECOLOGY POSTER SETS Instructor Publ. Inc., 1970.
This poster series was designed for use by teachers and pupils of elementary grades. The teacher's guide provides background information and suggested activities for each poster. Another series, similar in format, is entitled Eco-Problems.

LIFE EDUCATIONAL REPRINTS Life Education Program
The editors of Life have reprinted many of the pictorial essays for use in schools. The series from the World We Live In is an excellent source of pictures for ecological studies at any grade level.

NATIONAL WILDLIFE WEEK. National Wildlife Federation
An annual event in March which focuses attention on different aspects of wildlife each year. Kits, which include posters and suggested activities, are available to teachers free of charge.

STUDY PRINTS Singer
13" x 13" photographs on heavy stock in sets of 8. On the reverse of each print is factual information, questions, and suggestions for use. The Basic Science Series covers plants, animals, cloud forms, and land forms of running water. Urban Life Series introduces the child to some of the ways the people of the city work and play.

MAGAZINES
GRADES 4 - 6

AUDUBON

National Audubon Society, 950 Third Avenue, New York, N.Y. $10.00 with individual membership in Society "for the Conservation and appreciation of wildlife and wilderness, natural resources and natural beauty". Bi-monthly, 130 pages, noted for its EXCELLENCE of material and color photography. A wonderful source for a picture file.

THE CONSERVATIONIST State of New York Department of Environmental Conservation, Albany, N. Y. 12201

$2.00 per year, $5.00 for three years. Bi-monthly. The colored center spread and accompanying article, including teaching suggestions, is a most valuable aid.

THE CURIOUS NATURALIST Massachusetts Audubon Society, Lincoln, Massachusetts 01773

$2.50 subscription, 9 issues per year, 16 pages, "A magazine for beginning naturalists". The World of Animals featured in 1971-72 volume.

INTERCHANGE Newsletter Population Reference Bureau, Inc., 1755 Massachusetts Avenue, N.W., Washington, D. C. 20036.

Free. Bi-monthly. Provides information on most recent developments in the growing effort to introduce population issues into formal school curricula, primarily at middle and secondary levels.

THE JOURNAL OF ENVIRONMENTAL EDUCATION Dembar Educational Research Services, Box 1605, Madison, Wisconsin 53701.

$7.50 subscription, $5.00 for students, $2.00 single copy. Quarterly, 48 pages, black and white, no photographs, "devoted to research and development in conservation communications". Vital addition to professional libraries in every school.

ECO-NEWS Environmental Action Coalition, Inc., East 49th Street, New York, N.Y. 10017.

$2.00 per year, monthly September to June.

A young people's environmental newsletter, urban oriented. Each issue centered on one theme - articles, activities, reading list, free materials.

MAGAZINES GRADES 4-6

KIDS Kid's Publishers, Inc., 777 Third Avenue, New York 10017.
$5.00 per year subscription, 50¢ each. "The magazine by kids for each other;" poems, stories, cartoons, photos, paintings and more. 10 issues per year, 50 pages.

NATIONAL GEOGRAPHIC National Geographic Society, 17th & M Sts., N.W., Washington, D. C. 20036.
$9.00 per year, $1.00 single copy. Monthly; special Dec. 1970 issue, "Our Ecological Crisis", especially valuable.

NATIONAL WILDLIFE National Wildlife Federation, 1412 16th St., N.W., Washington, D. C. 20036.
$6.50 per year, bi-monthly, 55 pages, noted for many color photographs. There are Environmental Education materials available, also a kit for National Wildlife Week. "Ideas for Learning" a teacher's guide to National Wildlife is now being published. National Wildlife also publishes International Wildlife, similar in format and with "Ideas for Learning" guide free to teachers.

PACK-O-FUN John M. Clapper, 14 Main Street, Parkridge, Ill. 60068
$3.00 per year ($10.00 for 3 years) Monthly. Arts and crafts projects with holiday and/or seasonal emphasis. A wealth of ideas for recycling all manner of materials.

RANGER RICK'S NATURE MAGAZINE National Wildlife Federation, 1412 16th Street, N.W., Washington, D. C. 20036.
$6.00 per year. Monthly (except June and September). The best of its kind for children. Vital addition to the school library. Teacher's guide available.

SCHOOL ARTS 72 Printer Building, Worcester, Mass., 01608.
$7.00 per year. Monthly September-June. The art magazine for teachers, with new ideas, latest techniques and practical help. Articles and activities to increase student's environmental awareness.

SCIENCE AND CHILDREN National Science Teachers Association, 1201 16th Street, N.W., Washington, D. C. 20036.
$4.00 per year subscription, $.75 single copy, published September-December and February-May, 30 pages, black-and-white. Many valuable teaching suggestions.

THE YOUNG NATURALIST Federation of Ontario Naturalists, 1262 Don Mills Road, DonMills, Ontario, Canada.
$3.00 subscription, 10 issues per year, 8 pages, natural history subjects.

ADDRESSES
GRADES 4-6

Abingdon Press
201 Eighth Avenue
Nashville, Tenn. 37203

AAAS
1515 Massachusetts Avenue, N.W.
Washington, D. C. 20005

American Education Publications
Xerox Education Group
Education Center
Columbus, Ohio 43216

Association for Childhood
Education International
3615 Wisconsin Avenue, N.W.
Washington, D. C. 20016

Association of Classroom Teachers
National Education Association
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

Atheneum Publishers
132 E. 42nd Street
New York, N.Y. 10017

Ballantine Books, Inc.
101 Fifth Avenue
New York, N. Y. 10003

Beacon Press
25 Beacon Street
Boston, Massachusetts 02103

Board of Education of the City
of New York
Bureau of Curriculum Development
130 West 55th Street
New York, N. Y. 10019

Boston Public Library
Copley Square
Boston, Mass. 02117

Boxwood Press
Box 7171
Pittsburgh, Pa. 15213

Burgess Publishing Company
426 S. Sixth Street
Minneapolis, Minn. 55415

Carnegie Museum
4400 Forbes Avenue
Pittsburgh, Pa. 15213

Center for Urban Education
105 Madison Avenue
New York, N. Y. 10016

Churchill Films
662 North Robertson Blvd.
Los Angeles, Ca. 90069

Citation Press
(see Scholastic Book Services)

Conservation & Environmental
Science Center
Box 2229
Whitesbog, N. J. 08015

Cooperative Children's Book Center
Center
411 West, State Capitol
Madison, Wis. 53702

Cornell University Press
124 Roberts Place
Ithaca, N. Y. 14850

John Day Company
62 W. 45th Street
New York, N.Y. 10036

Dodd, Mead & Company
79 Madison Avenue
New York, N. Y. 10016

ADDRESSES GRADES 4-6

Doubleday & Company, Inc.
501 Franklin Avenue
Garden City, N. Y. 11530

Eastman Kodak Company
Rochester, N. Y. 14650

Education Development Center
Social Studies Curriculum Project
15 Mifflin Place
Cambridge, Mass. 02138

Education Ventures, Inc.
209 Court Street
Middletown, Conn. 06457

Elk Grove Press
17420 Ventura Blvd.
Encino, Pa. 91316

Encyclopedia Britannica Educational Corporation
425 N. Michigan Avenue
Chicago, Illinois 60611

Environmental Science Center
5400 Glenwood Avenue
Golden Valley, Minn. 55422

ERIC Clearinghouse for Education and Social Sciences
970 Aurora
Boulder, Colorado 80302

Eye Gate House, Inc.
146-01 Archer Avenue
Jamaica, N. Y. 11435

Field Enterprises Educational Corporation
Merchandise Mart Plaza
Chicago, Illinois 60654

The Geographical Association
343 Fulwood Road
Sheffield S10 3BP
England

Ginn & Company
191 Spring Street
Lexington, Mass. 02173

Golden Gate Junior Books
Div. of Nourse Pub. Co.
Box 393, 543 Old Country Road
San Carlos, Ca. 94070

Gull Lake Environmental Education Project
Kellogg Bird Sanctuary
Michigan State University
Augusta, Michigan 49012

Hale, E.M. & Company
1201 S. Hastings Way
Eau Claire, Wis. 54701

Hamilton Board of Education
100 Main Street, West
Hamilton 10, Ontario

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, N.Y. 10017

Harper & Row Publishers, Inc.
49E. 33 Street
New York, N. Y. 10016

Hastings House Publishers, Inc.
10 E. 40 Street
New York, N. Y. 10016

Holiday House, Inc.
18 E. 56 Street
New York, N. Y. 10022

ADDRESSES GRADES 4-6

Holt, Rinehart & Winston, Inc.
333 Madison Avenue
New York, N.Y. 10017

Houghton Mifflin Company
2 Park Street
Boston, Mass. 02107

Information Center on Children's Cultures
331 East 38th Street
New York, N. Y. 10016

Instructional Services, School District of Philadelphia
Philadelphia, Pa.

The Instructor Publications, Inc.
Dansville, N. Y. 14437

Interstate
19 N. Jackson Street
Danville, Ill. 61832

Iowa State University Press
Press Building
Ames, Iowa 50010

J. Weston Walch, Publisher
Box 1075
Portland, Maine 04104

Life Education Program
Box 834, Radio City P.O.
New York, N. Y. 10019

Little, Brown & Company
34 Beacon Street
Boston, Mass. 02106

Lothrop, Lee & Shepherd Co.
105 Madison Avenue
New York, N.Y. 10016

McGraw-Hill
330 W. 42nd Street
New York, N.Y. 10036

The Macmillan Company
866 Third Avenue
New York, N.Y. 10022

Maine Environmental Education Project
Dean B. Bennett, Director
Intermediate School
Yarmouth, Maine 04096

Massachusetts Audubon Society
Lincoln, Mass. 01773

M.I.T. Press
28 Carleton Street
Cambridge, Mass. 02142

Mine Publications, Inc.
25 Groveland Terrace
Minneapolis, Minn. 55403

Minnesota School Mathematics & Science Center
720 Washington Avenue, S.E.
Minneapolis, Minn. 55455

National Audubon Society
Educational Services
950 Third Avenue
New York, N. Y. 10022

National Council for the Social Studies
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

NEA-National Education Association Publications
1201 Sixteenth St., N.W.
Washington, D. C. 20036

ADDRESSES-GRADES 4-6

National Geographic Society
17 & "M" Streets, N.W.
Washington, D.C. 20036

National Instructional Television
Suite 217
1346 Connecticut Avenue, N.W.
Washington, D. C. 20036

National Science Teachers Association
Publications Department
1201 16th Street, N.W.
Washington, D. C. 20036

National Wildlife Federation
1412 16th Street, N.W.
Washington, D. C. 20036

Natural History Press
(see Doubleday & Co., Inc.)

N.E.E.D
(see Silver Burdett)

New American Library
1301 Avenue of the Americas
New York, N.Y. 10019

North Jersey Conservation Foundation
300 Mendham Road
Morristown, N. J. 07960

Nuffield Mathematic Project
(see Wiley)

Oxford University Press, Inc.
200 Madison Avenue
New York, N.Y. 10016

Parker Publishing Company
West Nyack, N. Y. 10994

Pennsylvania Department of Education
Dr. Irvin T. Edgar
Box 911
Harrisburg, Pa. 17126

Planned Parenthood-World Population
810 Seventh Avenue
New York, N.Y. 10019

Population Curriculum Study
University of Delaware
205 Willard Hall
Newark, Delaware 19711

Population Reference Bureau
1755 Mass Avenue, N.W.
Washington, D.C. 20036

Putnam--G.P. Putnam's Sons
210 Madison Avenue
New York, N. Y. 10016

Rand McNally & Company
Box 7600
Chicago, Illinois 60680

Regional Marine Science Project
Carteret County Public Schools
Beaufort, N. C. 28516

Rodale Books, Inc.
33 E. Minor Street
Emmaus, Pa. 18049

Scholastic Book Services
904 Sylvan Avenue
Englewood Cliffs, N. J. 07632

Scholastic Teacher
902 Sylvan Avenue
Englewood Cliffs, N. J. 07632

ADDRESSES GRADES 4-6

School of Education
University of Colorado
Boulder, Colorado 80302

Scott Foresman & Company
1900 E. Lake Avenue
Glenview, Ill. 60025

Scribners, Charles & Sons
597 Fifth Avenue
New York, N. Y. 10017

Serina Press
70 Kennedy Street
Alexandria, Va. 22305

Sierra Club
1050 Mills Tower
San Francisco, Ca. 94104

Silver Burdett Company
250 James Street
Morristown, N. J. 07960

Simon & Schuster, Inc.
630 Fifth Avenue
New York, N. Y. 10020

Singer Society for Visual Education
1345 Diversey Parkway
Chicago, Illinois 60614

SMEAC - Science, Mathematics & Environmental Education Analysis Center
140 West Lane Avenue
Columbus, Ohio 43221

Stackpole Books
Cameron & Kelker Streets
Harrisburg, Pa. 17105

SVE - Society for Visual Education
(see Singer Society for Visual Education)

U. S. Department of the Interior
Bureau of Outdoor Recreation
Washington, D. C. 20240

U.S. Department of the Interior
Office of the Secretary
National Park Service
18th Between "C" & "D" Streets
Washington, D. C. 20240

U.S. Government Printing Office
Division of Public Documents
Washington, D. C. 20402

Viking Press, Inc.
625 Madison Avenue
New York, N.Y. 10022

Walker & Company
720 Fifth Avenue
New York, N.Y. 10019

Warne, Frederick & Co., Inc.
101 Fifth Avenue
New York, N.Y. 10003

Watts, Franklin, Inc.
575 Lexington Ave.
New York, N.Y. 10022

Westminster Press
Witherspoon Building
Philadelphia, Pa. 19107

Whitman, Albert & Company
560 W. Lake Street
Chicago, Ill. 60606

ADDRESSES GRADES 4-6

Wiley, John & Sons, Inc.
605 Third Avenue
New York, N.Y. 10016

William C. Grown Co., Publishers
135 S. Locust
Dubuque, Iowa 52003

William Collins Sons & Company
100 Lesmill Road
Don Mills, Ontario, Canada

World Publishing Company
110 East 59th Street
New York, N.Y. 10022

AIDS TO ENVIRONMENTAL EDUCATION - UPDATE I
ELEMENTARY

As the title indicates this is an update of previous bibliographies which contain basic materials for environmental education.

This Update does not duplicate those materials but rather provides selected titles chosen from the multitude which have been published in the past two or three years. The majority of the books are directed to the teacher. Most contain reading lists that lead to many other valuable sources.

In selecting curriculum materials, the emphasis has been placed on those which call for active student participation, in the classroom and in the community.

SP 007617

June 1974
HATHEWAY ENVIRONMENTAL EDUCATION INSTITUTE
MASSACHUSETTS AUDUBON SOCIETY
LINCOLN, MA. 01773

This publication was prepared pursuant to a contract with the United States Office of Education. It represents a select rather than comprehensive listing of materials prepared for the information and convenience of teachers. Selection of material for this list by either Massachusetts Audubon Society or the U.S. Office of Education does not constitute official endorsement or approval of it to the exclusion of others which may be suitable.

Bibliography compiled by Margaret McDaniel, Librarian,
Hatheway Environmental Education Institute, Massachusetts
Audubon Society

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BOOKS - ACTIVITY GUIDES

Gould, Josephine SENSORY EXPERIENCES FOR YOUNG CHILDREN Josephine Gould, 1971

An outstanding collection of activities to increase children's sensory awareness.

Related materials: Linderman, E.W. DEVELOPING ARTISTIC AND PERCEPTUAL AWARENESS W. C. Brown, 1969
USING OUR SENSES Minnemast, 1971

Miller, Peggy L. CREATIVE OUTDOOR PLAY AREAS Prentice-Hall, 1972

Contains over one hundred pages of ideas regarding ways to develop creative play and natural areas on a school site to meet the needs of children.

Here is an opportunity to draw on community resources for a project that will benefit everyone High school or junior high school students could also be involved in a rewarding project.

Related books: Brainerd, John WORKING WITH NATURE: A PRACTICAL GUIDE Oxford, 1973
Dattner, Richard DESIGN FOR PLAY MIT 1974
Lady Allen of Hurtwood PLANNING FOR PLAY MIT 1968

Russell, Helen Ross TEN MINUTE FIELD TRIPS Ferguson, 1973

This book contains a wealth of suggestions for using the school grounds for environmental studies. A great many of the activities can be carried out in urban areas.

The organization of each chapter adds to the value of the book. First a brief general introduction opens the topic, followed by short discussions of "Related Classroom Activities" and "Teacher Preparation", then a listing of "Field Trip Possibilities" on the school grounds. This is one of the best sources currently available.

Related book: Betros, Harry UNDERSTANDING SCHOOLYARD ECOLOGY, Exposition Press, 1972

Sale, Larry L. & E. W. Lee ENVIRONMENTAL EDUCATION IN THE ELEMENTARY SCHOOL Holt, 1972

This is a textbook intended to help teachers plan and implement environmental education experiences.

Sutton, David B. & N. P. Harmon ECOLOGY: SELECTED CONCEPTS Wiley, 1973

A programmed text that is well-written and informative. It is cross-referenced to ten current ecology textbooks. A useful reference for teachers at any level and an interesting means of self-testing for competent students.

Troost, C. J. & Harold Altman ENVIRONMENTAL EDUCATION: A SOURCE BOOK Wiley, 1972

As the title indicates this is a reference book. It will provide a good source for the teacher who is unfamiliar with the philosophy and principles of environmental education.

Models of curricula for K-12 and suggestions for specific courses, activities and field trips are described.

BOOKS - ACTIVITY GUIDES (Cont)

Vivian, V. Eugene SOURCEBOOK FOR ENVIRONMENTAL EDUCATION C. V. Mosby, 1973

The need for environmental education is presented as a set of objectives. The author shows how these objectives both affective and cognitive, may be reached in the classroom and its extensions.

The first section presents a series of carefully outlined sample unit plans suitable for use from primary to secondary grades.

The second approach teaches students how to monitor environmental factors, and the third section deals with community study from both the scientific and societal point of view.

Teachers will be able to fit many of these suggestions into their own units.

Zuckerman, David W. & R. E. Horn GUIDE TO SIMULATIONS/GAMES FOR EDUCATION AND TRAINING 2nd ed. Information Resources, 1973

This is the most comprehensive directory of simulations. The simulations/games are classified into some 20 categories (such as Business, Ecology, Social Studies, etc.), describing each game by playing data (age level, number of players, playing time, etc.) and providing information on cost and producer. There are comments by the editors.

In addition there are several other unique features, i.e. "Getting into Simulations for the First Time User," a chapter on designing games "For the Advanced User", "How Students Can Make Their Own Simulations", and more. A most important acquisition.

BOOKS - BACKGROUND READING

Allen, Rodney et al. TEACHING GUIDE TO PLOVER BOOKS Plover Books, 1973

This teaching guide is a most valuable and necessary tool for any teacher interested in values education. Allen presents an overview of many values education approaches that is readable and readily understandable.

There are chapters on "Being Human is Making Choices", "Handling Ethic Cases" and "Values in Life."

Gerlach, Luther P. & V. H. Hine LIFEWAY LEAP: THE DYNAMICS OF CHANGE IN AMERICA University of Minn., 1973

Teachers endeavoring to understand and adapt to the current trend of rapid change will find this a useful book. It also includes a relatively simple explanation of systems analysis, a currently important topic.

This book will provide background for teachers using many of the curriculum materials cited in this bibliography.

Related books: Fabun, Don DIMENSIONS OF CHANGE Macmillan, 1971
Toffler, Alvin FUTURE SHOCK Random, 1970

Gorman, Richard M. DISCOVERING PIAGET Merrill, 1973

Here is a readable and readily understandable analysis of Piaget's theories of learning. It is designed for use in an education course but is equally useful to an individual teacher. Examples and questions are given in each section followed by explanations so the reader can be sure of understanding each aspect of Piaget's theories.

Harmin, Merrill et al CLARIFYING VALUES THROUGH SUBJECT MATTER: APPLICATIONS FOR THE CLASSROOM Winston, 1973

The "three-level teaching" method-facts, concepts, and values - detailed in this book would make study of current problems and their many ramifications much more effective than the simple accumulation of facts. Students can be shown that their choices and consequent actions are important.

Related books: Metcalf, L.E. ed VALUES EDUCATION
Simon, Sidney et al VALUES CLARIFICATION

McInnis, Noel YOU ARE AN ENVIRONMENT: TEACHING/LEARNING ENVIRONMENTAL ATTITUDES Center for Curriculum Design, 1972

A stimulating and thought provoking booklet that shows how environmental education can be implemented in the total curriculum. It includes an interesting approach to systems analysis

Paull, Dorothy and John YESTERDAY I FOUND.. Mountain View Center for Environmental Education, 1972

This is an account of how a British teacher and her class used the world around them and its resources as the focal point for their day-by-day life in school.

In Dorothy Paull's classroom almost any starting point led the children to extend their perceptions, to cross the boundaries between the traditional subjects, and to go easily between the world of school to the world around school. An inspiring account.

The Mountain View Center publishes an excellent quarterly entitled OUTLOOK.

Related books: Harris, Melville ENVIRONMENTAL STUDIES
Citation, 1971
Richardson, Elwyn IN THE EARLY WORLD
Random, 1969
Watts, D. G. ENVIRONMENTAL STUDIES
Routledge & Kegan Paul, 1969

Samples, Bob & Bob Wohlford OPENING Addison-Wesley 1973

The subtitle "a Primer for Self-actualization" states the purpose of this book. It is an outgrowth of the authors' work on the Environmental Studies Project (see Curriculum Guide section).

In the preface they write "...it is not a recipe book for encounter. It is a private book intended for independent growth as opposed to the dependent growth strategies of group techniques."

Related book: Koberg, Don THE UNIVERSAL TRAVELER
Kaufman, 1973

Silberman, Charles E. THE OPEN CLASSROOM READER Random, 1973
A well-balanced collection of selections from American, English and Canadian sources, many of them previously inaccessible. Each section presents practical explanations and detailed descriptions of classroom activities and methods, interspersed with theoretical discussions. Dip into this for encouragement and inspiration.

Thompson, James J. BEYOND WORDS: NONVERBAL COMMUNICATION IN THE CLASSROOM Citation Press, 1973
Here is a highly readable, non-technical explanation of the many ways nonverbal communication affects the performance of both students and teachers.
BODY TALK: THE GAME OF FEELING AND EXPRESSION can be used with either elementary or secondary students, and with adults. Playing it would reinforce the ideas set forth in BEYOND WORDS. This game is one in the "Psychology Today" series.

BIBLIOGRAPHIES

AIDS TO ENVIRONMENTAL EDUCATION, Massachusetts Audubon Society
Annotated bibliographies, for grades K-3, 4-6, 7-9, and 10-14, which list curriculum projects, books, and audio-visual materials.

Canfield, John and Mark Philips, HUMANISTICOGRAPHY Adirondack Mountain Humanistic Education Center
An annotated resource guide to books, films, tapes, simulations, classroom exercise books, curricula, journals and organizations in the field of humanistic education.
An annotated bibliography on values clarification is also available from this center.

THE ENERGY CRISIS - AIDS TO STUDY, Massachusetts Audubon Society, 1974
An annotated bibliography of books, magazine articles, and curriculum aids to start teachers on a study of the energy crisis.

ENVIRONMENTAL CONSERVATION EDUCATION Interstate, 1974
A selected annotated bibliography of books, both hardbound and paperbound, compiled for the Conservation Education Association. This is an excellent source to use for building a new collection or for filling the gaps in an established one. The cut-off date is 1972.

ENVIRONMENTAL EDUCATION MATERIAL National Science Teachers Assoc., 1973
A catalogue of reviewed and evaluated free and low-cost materials for science, social studies, and industrial arts. Includes films, charts and slides. Majority of the material is produced by industries.

CURRICULUM MATERIALS
AUDIO-VISUAL AIDS

ANIMAL CAMOUFLAGE & DEFENSE Walt Disney Educational Materials Co., 1973

This is one of three sets in The Disney "True Life Adventures" poster series. These drawings have been appearing in newspapers for many years and have always had great appeal.

Each of the 12 posters in this set on camouflage and defense can provide for activities for individual or group work in any subject.

The other two sets are "Going, Going, Gone" on vanishing and extinct animals and "Nature's Oddities".

These make great openers for new topics.

EARTH - OASIS IN SPACE Scholastic Book Services color filmstrip and disc

This is one part of Scholastic's Earth Corps Study Program. It can be used as an effective introduction to environmental studies for upper elementary students.

The filmstrip has two intermingling themes - Spaceship Earth and four-and-one-half-billion years of change. It is not intended to be a definitive study of ecology but rather to create an awareness of the earth, man's affects on it, and the possibilities for the future.

It has many interdisciplinary uses. Some of these are brought out in the teacher's guide.

THE GODS WERE TALL AND GREEN Lyceum Productions 2 color filmstrips, discs or cassettes

TREES: AN ANCIENT KINSHIP explores the evolution of trees and the parallel evolution of tree-dwelling insects, birds and early man.

The second filmstrip THE KINGDOM OF THE FOREST analyzes the continuous cycle of life in which the dead tree becomes the habitat of plants and animals.

These outstanding photographic essays, blending science, history, mythology and visual imagery, provide possibilities for inclusion in any number of areas.

HAIKU: THE MOOD OF EARTH and SEA, SAND AND SHORE are two more of Lyceum's series that offer innumerable opportunities for environmental education. Grade 5 and up

SCHOLASTIC DIMENSION/ENVIRONMENT Scholastic Book Service, 1973

This is the first kit in a multi-media extension of News Explorer, News Citizen and News Time, the scholastic magazines for grades 4, 5, and 6. It includes a Teacher's guide, sound color filmstrip "Setting the Stage", two games, activity cards and transparencies.

This can be used as a unit covering several weeks. Many of the materials can be used again and again as related subjects come up.

ENERGY will be the first kit in the 1974-75 school year Dimension series.

These packets can be purchased separately. Each has many excellent features and is adaptable to a wide grade range.

THIS EARTH Guidance Associates, 1973

A multi-media program in four parts, each of which contains a color sound filmstrip, worksheets, maps, games, posters and the like..

This Earth series consists of: A WORLD OF DIFFERENCES showing the vast diversity of plant and animal forms and functions; the WONDER OF CHANGE indicating that all living and non-living things change; HOW LIFE ADAPTS explaining the importance of adaptive mechanisms for plant and animal survival; and EVERYTHING FITS TOGETHER describing the special partnerships occurring throughout nature.

Teachers will find a wealth of possibilities in this outstanding series. It ties in very well with the strand approach of MAN AND HIS ENVIRONMENT from NEA. See Ecology in The Elementary School cited in Curriculum Guides.

THE VISUAL CITY Warren Schloat Productions, 1973 4 color filmstrips, discs or cassettes

Another excellent introductory program that offers many interdisciplinary possibilities. The four sections - WHAT IS A CITY?; SPACE AND SCALE; COLOR, TEXTURE, & PATTERN; FORM & MOVEMENT - will enable students to consider each cityscape individually for its compositional elements rather than its identifying location.

This calls for a follow-up with experiential units such as GLOUCESTER: DOING & DESCRIBING cited in the curriculum guide section. Grade 6 and up

Related books: Goodman, Paul & Percival COMMUNITAS
Vintage, 1960
Hosken, Fran P. LANGUAGE OF CITIES
Schenkman, 1972
Lynch, Kevin IMAGE OF THE CITY MIT 1960

WHAT IS ECOLOGY, Warren Schloat Productions 1973 1 color filmstrip, disc or cassette

An excellent introduction to the basics of ecology. A case study of the Florida Barge Canal controversy demonstrates the need for understanding the ecological principles emphasized in the preceding section of the filmstrip. This case study will be helpful to students preparing similar studies on local problems. Grade 6 and up

ENVIRONMENT FILM REVIEW Environment Information Center, 1973

An indispensable film guide! It contains critical evaluations of films in 21 environmental areas, and in addition provides all necessary details on price, producer, distributor, etc.

CURRICULUM MATERIALS
GUIDES AND UNITS

BEYOND THE CLASSROOM Massachusetts Audubon, 1974

A guide to the use of the urban environment as an instructional medium. The package includes a general guide to urban environmental education; 4 packets of activity cards, one for each of the grade levels k-3, 4-6, 7-9, and 10-12; and a guide to the natural history of cities.

DENVER URBAN ENVIRONMENTAL STUDIES Balarat Center for Environmental Studies

This packet for grades K-6 offers suggested activities, learning models, and resources all designed to encourage the pupil to learn through inquiry, through celebration, and through action.

Inquiry activities may naturally become a part of science and social studies, celebration activities may correlate closely with art, music or physical education. Action provides positive means to build the child's sense of responsibility and stewardship.

ECOLOGY IN THE ELEMENTARY SCHOOL Dade County School Board, Miami, Fl.

This curriculum guide is organized around the "strand" approach used in the National Parks NEED project (ADVENTURE IN ENVIRONMENT, silver Burdett) Activities in science, social studies, math, and art are outlined for each of the strands - 1)Interaction and Independence, 2) Variety and Pattern, 3)Continuity and Change, 4) Survival and Adaptation.

See also YOU AND YOUR ENVIRONMENT cited in this section and the multi-media series THIS EARTH cited under audio-visual aids.

ENERGY AND MAN'S ENVIRONMENT: ELEMENTARY THROUGH SECONDARY INTERDISCIPLINARY ACTIVITY GUIDE 2nd revised ed., Energy and Man's Environment, 1973

This guide is one of the results of a pioneering union between the educational and business community, namely The State of Washington Superintendent of Public Instruction and The Public Power Council.

To aid integration into any subject each chapter has four major themes: 1)Scientific, 2)Ethical, 3)Aesthetic, 4)Utilitarian. The learning objectives and activities are divided into four clusters so teachers can choose those which best fit their students' needs - 1)Primary, 2)Intermediate, 3)Middle & Junior High, 4)Secondary and High School.

Teachers will find this a useful source of ideas but will need to add detailed notes to flesh out the activities.

ENVIRONMENTAL EDUCATION AND YOUR SCHOOL SITE Open Lands Project, 1973

"The overall objective of this handbook is to define a process approach to the development of a school site for use in environmental education, i.e., an approach which involves the student body, school personnel and community in the planning, development and use of the school site as a "green island" for school and community use."

A wealth of realistic suggestions for step-by-step planning and development, followed by examples of sound teaching techniques and an excellent bibliography.

Related book: Ortiz, J.L. URBAN WILD Huntington Beach High School, Huntington Beach, Ca.

ENVIRONMENTAL EDUCATION/FACILITY RESOURCES EFL, 1972

Many of the most effective and successful programs in environmental education use existing school plants and sites as the primary facilities for environmental studies. The descriptions in this report will help teachers and administrators to recognize the possibilities in their own schools and communities, and to understand that major expenditures are not necessary in order to mount successful EE programs.

See also COMMUNITY/SCHOOL:SHARING THE SPACE AND ACTION published by EFL

ENVIRONMENTAL EDUCATION FOR THE SEVENTIES Cooperative Extension Service, Purdue University 1973

This is a "grabbag" of activities drawn from school, federal, and commercial programs, that would be a help to the teacher seeking ways to incorporate science, math, language arts, etc. into an interdisciplinary environmental education program for K-12.

ENVIRONMENTAL EDUCATION REPORT, Environmental Educators, Inc.

Although this is a monthly publication not a curriculum guide, it is included here because it is an outstanding source for information on current programs. Teachers should most certainly have access to it.

ENVIRONMENTAL STUDIES PACKETS Essentia, 1974

The third and final set of Environmental Studies materials, Packets 5 and 6 focus on more specific content items than did Packets 1 through 4. There mini-units that can be used either as curriculum units lete in themselves or as supplements to existing curricul

Like the preceding p s, they emphasize student activity and decision making and are not limited as to grade level or subject area. Although individual units provide natural science, human science, or humanities focuses, each presents many opportunities for interdisciplinary activities.

EXPLORING YOUR ENVIRONMENT-THE DANDELION Winston, 1974

The Dandelion is the latest in this excellent, colorful series. Whatever the locale - rural, suburban or urban - the dandelion becomes a "research area" for first hand investigation. The text does not provide the answers. Students come up with them by performing a wide range of intriguing projects.

This series, which includes ten other books, would fit in very well with The Science 5/13 described further on.

Upper elementary children can use these themselves. Teachers of lower grades will find them full of ideas.

GUIDE TO PLANNING AND CONDUCTING ENVIRONMENTAL AREA WORKSHOPS NEA, 1973

Teachers and administrators eager to establish environmental education programs will find this guide a most valuable tool.

Use in conjunction with the NEA publication MAN AND HIS ENVIRONMENT: AN INTRODUCTION TO USING ENVIRONMENTAL STUDY AREAS for an excellent inservice program.

ENVIRONMENTAL EDUCATION AND YOUR SCHOOL SITE (cited earlier) would help to expand on these ideas.

INTERNATIONAL EDUCATION FOR SPACESHIP EARTH Foreign Policy Ass'n., 1972

Suggests a "spaceship earth" perspective for education in response to global interdependence, and reviews recent curriculum projects and innovations in teaching methods, and introduces strategies for change. Offers suggestions for global units at the elementary and secondary levels.

INNOVATIVE SOCIAL STUDIES IN URBAN ELEMENTARY SCHOOLS (ISSUES) Kansas City, Mo. 1973

This program for inner city students in grades 5-8 is based on two major premises - 1)social studies concepts and skills are best learned from a study of psychology and sociology in real in-and-out-of-school settings; 2)students must be active participants in real community problem solving in order that the learning processes have meaningful consequences. In short, students are doing social studies - and asking for more!

The objectives and strategies of ISSUES could easily be adapted to other schools.

AN INTRODUCTION TO VALUE CLARIFICATION J. C. Penney, Inc., 1972

This kit includes a guide, Forum magazine on "Value Clarification," and 7 folders containing overheads, worksheets, flash cards and posters, all pertaining to strategies described in Simon's book "Clarifying Values".

The format of the Kit will help a teacher to organize and to extend his collection of value strategies.

THE TEACHING GUIDE TO PLOVER BOOKS by Allen and CLARIFYING VALUES THROUGH SUBJECT MATTER by Harmin (cited under books) offer the means of carrying these value clarification strategies beyond the "fun and games" aspect to constructive outcomes.

INVESTIGATIONS IN ECOLOGY Merrill, 1972

A boxed set of 70 6½ X 9" skill cards "Nothing exists in isolation" is the core idea of this set of ecological study skill cards which span several disciplines.

The investigations are grouped into three sections: "People and Environment," "Plants, Animals and Environment" and "Earth-Life's Environment". Included is a Guide to Learning that contains suggestions for further investigations as well as Teaching Tips. Very useful for those seeking activities for independent study.

LEARNING WITH GAMES SSEC & ERIC/CHESS, 1973

This is an analysis of 70 social studies educational games and simulations. In addition, it provides an extensive list of sources and resources on the development and use of educational simulations and games.

Teachers of other subjects will find that many of the games/simulations will provide an excellent opportunity for interdisciplinary studies.

POWER PLANTS IN TOLEDO Toledo Public Schools 1973

This section of the Toledo Environmental Education Program containing two environmental encounters, one for secondary level and one for elementary provides teachers with an excellent format on which to build encounters geared to their own communities.

GUIDELINES FOR THE TEACHER, another section of the Toledo EE program, includes sections on handling value questions, handling controversial issues and effecting social change.

The units in the Toledo program offer many strategies for modifying the instructional program to promote environmental education.

THE PROCESS OF CHOICE A Levy with S. Geissbuhler Group for Environmental Education, MIT Press, 1973

The Process of Choice continues the exploration begun in Our Man-Made Environment. It is a package of five booklets that take up and relate different phases of the choice and change process - 1)an overall Introduction to the Process and its separate parts; 2) What You Want - how to decide what goals to aim for; 3) Your Resources both human and material; 4) What You are Allowed to Do, dealing with constraints such as building and zoning laws; 5) How You Make Choices, which ties everything together.

New concepts are introduced in each booklet through stories and poems, drawings and photographs, puzzles and cartoons.

Although aimed at the middle grades, this can be extended to earlier and later grades. It would be very useful in programs where high school students are teaching elementary students.

CURRICULUM MATERIALS (Cont)
GUIDES & UNITS

SCIENCE 5/13 TEACHERS' UNITS Macdonald Educational, 1973

'Science 5/13' is a British project sponsored jointly by the Schools Council, the Nuffield Foundation and the Scottish Education Department.

The material in the units is related to children's different stages of educational development rather than to their chronological ages - i.e., Piagetian stages.

Many of the units, such as CHANGE, TIME, OURSELVES can be readily integrated with subject areas other than science.

This is one of the most valuable series currently available.

SELF-EARTH ETHIC (SEE) Level One Interstate, 1973

This is one of a series of eight guides developed by John W. Hart & Jessie M. Turner. The program emphasizes the development of an environmental ethic based on SELF: A PART OF EARTH.

Level One stresses the first steps in the study of awareness and interrelatedness - 'Living Things' and 'Needs of Living Things'. These emphasize sensory awareness.

This program can be started at any elementary grade level and incorporated in any subject.

The books by Allen and McInnis cited previously will provide background. Gould's book will furnish more sensory activities.

"STARTING POINTS" Learning Magazine

"Starting Points" is a set of multiple activities that center around a significant theme. Here in an activity-filled package is the why, the how, and most of the wherewithal for the launch of a mini-unit of study on an important current theme. Each issue of Learning contains a different "starting point". Some of those relevant to E.E. are 'Communicating Through Symbols' 'The Energy Crisis' and 'Aesthetics".

The magazine itself is one of the best presently available to teachers. Every teacher's room should have a copy!

STUDIES IN THE ENVIRONMENT: REDESIGNING THE COMMUNITY University City, Missouri

This is one unit in the "Arts in General Education" curriculum, an interdisciplinary program for upper elementary and secondary students. Through the readings and projects in this social studies unit the students study the aesthetic aspects of the environment as part of larger social issues. An excellent example of interdisciplinary environmental education.

This program is described in detail as #20 in the "Profiles of Promise" series published by SSEC and ERIC/CRESS. Each issue focuses on a promising practice or innovative school program currently in operation. Each "POP" consists of a four-page description giving details of the program, additional resources and whom to contact for further information. A most outstanding source of information!

WHOLE WORD CATALOG Teachers and Writers Collaborative, 1972

A practical and most intriguing collection of assignments for stimulating student writing, designed for both elementary and secondary students. Includes an illustrated resource section on materials to supplement the assignments, and to suggest further possibilities.
Annotated bibliography

This is one in the series of newsletters published by The Collaborative. Language Arts teachers should share these with other departments.

YOU AND YOUR ENVIRONMENT PART I AND PART II American Education Publs.

This series is directed to middle school or junior high. Part I contains excellent simple activities about the basic concepts of diversity, adaptation and interrelationships. Part II deals in a similar manner with cycles and chains, succession, and disruption. A teacher's guide is available.

These activities would fit in well with the NEED guides Adventures in Environment.

A DIRECTORY OF PROJECTS AND PROGRAMS IN ENVIRONMENTAL EDUCATION FOR ELEMENTARY AND SECONDARY SCHOOLS ERIC/SMEAC, 1973

This second directory of EE programs provides descriptions of some 300 projects from all over the U. S. It also lists the materials available from each source so one can follow up on those that best fit the school's interests.

MAN AND ENVIRONMENT FOR THE INTERMEDIATE GRADES - A Curriculum Guide in Environmental Studies for Grades 4 - 8. National Association for Environmental Education, Miami, 1974

This modular, multi-disciplinary curriculum guide was created by experienced elementary school classroom teachers working in collaboration with curriculum and environmental specialists under the sponsorship of the N.A.E.E. The ten modules are developed within four clusters: Environment and the Individual, The Web of Life, The City as an Ecosystem, and Spaceship Earth. The content is organized by grade levels providing an opportunity for selecting specific examples of content that illustrate the concepts in a variety of situations. Units of study were chosen to coincide with the development level of the child providing him with the opportunity to learn from content with which he is most closely associated in everyday life.

ADDRESSES

Addison-Wesley Publishing Co.,Inc.
Jacob Way
Reading, Ma. 01867

Adirondack Mountain Humanistic
Education Center
Springfield Road
Upper Jay, N.Y. 12987

American Education Publications
Xerox Education Group,Education Ctr.
Columbus, Oh. 43216

Balarat Center for Environmental
Studies
Denver Public Schools
Jamestown, Co. 80455

Center for Curriculum Design
P.O. Box 350
Evanston, Il. 60204

Citation Press
see
Scholastic Book Services

C. V. Mosby Co.
11830 Westline Industrial Drive
St. Louis, Mo. 63141

Cooperative Extension Service
Purdue University
West Lafayette, In. 47907

Dade County School Board
Textbook Services
2210 S.W. Third Street
Miami, Fl. 33135

Educational Facilities Laboratory
477 Madison Avenue
New York, N.Y. 10022

Energy & Man's Environment
2121 Fifth Avenue
Seattle, Wa. 98121

Environment Information Center, Inc.
Library Reference Dept.
124 East 39th Street
New York, N.Y. 10016

Environmental Educators, Inc.
1621 Connecticut Ave., N.W.
Washington, D.C. 20009

ERIC Clearninghouse for
Education and Social Sciences
(ERIC/CHESS)
970 Aurora
Boulder, Co. 80302

ERIC/SMEAC
1800 Cannon Drive
400 Lincoln Tower
The Ohio State University
Columbus, Oh. 43210

Essentia
Evergreen State College
Olympia, Wa. 98505

The Foreign Policy Association
345 East 46 Street
New York, N.Y. 10017

Guidance Associates
23 Washington Avenue
Pleasantville, N.Y. 10570

Holt,Rinehart and Winston,Inc.
383 Madison Avenue
New York, N.Y. 10017

Information Resources, Inc.
P.O. Box 417
Lexington, Ma. 02173

Interstate
19 N. Jackson Street
Danville, Il. 61832

ISSUES
Dr. William B. Lieurance
475 East 55 Street
Kansas City, Mo. 64110

J. C. Penney, Inc.
Educational & Consumer
Relations
1301 Avenue of the Americas
New York, N.Y. 10019

J. G. Ferguson Publishing Co.
6 N. Michigan Avenue
Chicago, Il. 60602

Josephine Gould
608 Cumberland Avenue
Syracuse, N.Y. 13210

ADDRESSES

Learning
1255 Portland Place
Boulder, Co. 80302

Lyceum Productions, Inc.
P.O. Box 1226
Laguna Beach, Ca. 92652

Macdonald Educational
49/50 Poland Street
London W1A 2LG

Science 5/13 also available from:
GLC Educational Materials &
Services Ltd.
115 Agincourt
Ontario

Massachusetts Audubon Society
South Great Road
Lincoln, Ma. 01773

Merrill, Charles E., Publishing Co.
1300 Alum Creek Drive
Columbus, Oh. 43216

MIT Press
28 Carleton Street
Cambridge, Ma. 02142

Mountain View Center for
Environmental Education
University of Colorado
1511 University Avenue
Boulder, Co. 80302

NEA-National Education Association
Publications
1201 Sixteenth St., S.W.
Washington, D.C. 20036

National Science Teachers Assoc.
Publications Dept.
1201 16th St., N.W.
Washington, D.C. 20036

Open Lands Project
53 West Jackson Blvd.
Chicago, Ill. 60604

Plover Books
Terrace Heights
Winona, Mn. 55987

Prentice-Hall Inc.
Englewood Cliffs
New Jersey 07632

Random House Inc.
201 East 50th Street
New York, N.Y. 10022

Scholastic Book Services
904 Sylvan Avenue
Englewood Cliffs, N.J. 07632

Teachers & Writers Collaborative
c/o P.S. 3
490 Hudson Street
New York, N.Y. 10014

Toledo Public Schools
Environmental Education Program
Manhattan and Elm
Toledo, Oh. 43608

University City School District
725 Kingsland Avenue
University City, Mo. 63130

University of Minnesota Press
2037 University Ave., SE
Minneapolis, Mn. 55455

Walt Disney Educational Materials
Company
800 Sonora Avenue
Glendale, Ca. 91201

Warren Schloat Productions, Inc.
Pleasantville
New York 10570

Wiley-John Wiley & Sons, Inc.
605 Third Avenue
New York, N.Y. 10016

Winston Press
25 Groveland Terrace
Minneapolis, Mn. 55403

National Assoc. for Environmental
Education
5940 S.W. 73 Street
Miami, Fl. 33143